2004 CSAP Released Items

Grade 5 Mathematics

CSAP
Mathematics

1 During the summer, Henry earns $5 per hour babysitting and $4 per hour mowing lawns.

Part A Henry babysat a total of 48 hours. How much money did he earn babysitting? In the space below, show your work and write your answer on the line.

$ _____

Part B Including the 48 hours of babysitting, Henry earned a total of $308 by the end of summer. How many hours did he spend mowing lawns? In the space below, show your work and write your answer on the line.

_____ hours

Item 1:

Rubric

Exemplary Response

Part A

- $240

AND

- 48 hours × $5 = 240

Part B

- 17 hours

AND

- $308 − 240 = 68

  68 ÷ $4 = 17

  OR

- Other valid process

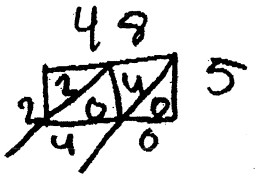
Score Points: Apply 2-point holistic rubric.

This item appeared at only one grade level.

Grade 5
Standard 6.2c: Operations and Calculations
Subcontent Area: not classified

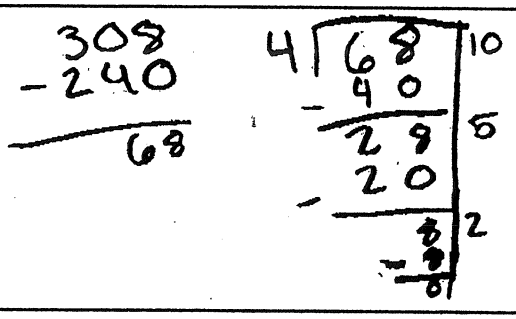
49 During the summer, Henry earns $5 per hour babysitting and $4 per hour mowing lawns.

Part A Henry babysat a total of 48 hours. How much money did he earn babysitting? In the space below, show your work and write your answer on the line.



$ 240

Part B Including the 48 hours of babysitting, Henry earned a total of $308 by the end of summer. How many hours did he spend mowing lawns? In the space below, show your work and write your answer on the line.



17 hours

2 Point Anchor

Part A: Correct Process and Answer.
Part B: Correct Process and Answer.

2pts

5M-3301

49 During the summer, Henry earns $5 per hour babysitting and $4 per hour mowing lawns.

Part A Henry babysat a total of 48 hours. How much money did he earn babysitting? In the space below, show your work and write your answer on the line.

48
X 5
$240

$ 240

Part B Including the 48 hours of babysitting, Henry earned a total of $308 by the end of summer. How many hours did he spend mowing lawns? In the space below, show your work and write your answer on the line.

77
4 | 308
28
28
28
00

77 hours

1 Point Anchor

Part A: Correct Process and Answer.
Part B: Incorrect Process and Answer.

1 pt CM

49 During the summer, Henry earns $5 per hour babysitting and $4 per hour mowing lawns.

Part A Henry babysat a total of 48 hours. How much money did he earn babysitting? In the space below, show your work and write your answer on the line.

$5 \times 4 = 20$

$48 + 20 = 68$

$ 68

Part B Including the 48 hours of babysitting, Henry earned a total of $308 by the end of summer. How many hours did he spend mowing lawns? In the space below, show your work and write your answer on the line.

$308 - 48 = 260$

260 hours

0 Point Anchor

Part A: Incorrect Process and Answer.
Part B: Incorrect Process and Answer.

anchor Opt CM

2004 CSAP Released Items

Grade 5 Mathematics

(This Item is also shared at Grade 6)

2 The table below shows the amounts of money Vince receives for selling bunches of flowers at the farmers' market.

Flower Sales

Number of Bunches	20	25	30	35
Amounts of Money	$120	$150	$180	

Part A Complete the table to show the amount of money Vince receives for selling 35 bunches of flowers.

Part B On the lines below, explain the rule used in the pattern.

_____

_____

_____

Part C Vince pays $45 each day for a place at the farmers' market. One day, he sold 8 bunches of flowers. Did Vince receive enough money to pay for his place that day?

In the space below, show your work and explain your reasoning, and write your answer on the line.

Did Vince receive enough money? _____

Item 2:

Rubric

Exemplary Response

Part A

- **Flower Sales**

Number of Bunches	20	25	30	35
Amounts of Money	$120	$150	$180	**$210**

Part B

- The money that was made increases by $30 with every 5 bunches of flowers sold.

  OR

- Multiply each number of bunches of flowers by 6 to get the money made.

  OR

- Other valid explanation

Part C

- Did Vince receive enough money? **Yes**

- Vince did make enough money to pay for his place. He makes $6 for each bunch, so if he sold 8 bunches, he made $6 $\times$ 8 = $48. If his place is $45, Vince had enough plus a little extra.

  OR

- Other valid explanation

Score Points: Apply 3-point holistic rubric.

This item appeared at two adjacent grade levels.

Grade 5
Standard 2.5a: Patterns, Functions, and Algebra
Subcontent Area: patterns

Grade 6
Standard 2.5a: Patterns, Functions, and Algebra
Subcontent Area: patterns

31 The table below shows the amounts of money Vince receives for selling bunches of flowers at the farmers' market.

Flower Sales

Number of Bunches	20	25	30	35
Amounts of Money	$120	$150	$180	210

35
1 4
210

Part A Complete the table to show the amount of money Vince receives for selling 35 bunches of flowers.

Part B On the lines below, explain the rule used in the pattern.

The rule used in the pattern is multiply the number of bunches by 6 and you get the amount of money.

Part C Vince pays $45 each day for a place at the farmers' market. One day, he sold 8 bunches of flowers. Did Vince receive enough money to pay for his place that day?

In the space below, show your work and explain your reasoning, and write your answer on the line.

$\times \frac{8}{6}$
48

$48 > 45$

Did Vince receive enough money? Yes

OK 3pts anchor

3 Pts.

5M-1301

31 The table below shows the amounts of money Vince receives for selling bunches of flowers at the farmers' market.

Flower Sales

Number of Bunches	20	25	30	35
Amounts of Money	$120	$150	$180	$210

Part A Complete the table to show the amount of money Vince receives for selling 35 bunches of flowers.

Part B On the lines below, explain the rule used in the pattern.

The rule used in the pattern was the number of bunches went up by 5 while the amounts of money went up by $30.

Part C Vince pays $45 each day for a place at the farmers' market. One day, he sold 8 bunches of flowers. Did Vince receive enough money to pay for his place that day?

In the space below, show your work and explain your reasoning, and write your answer on the line.

$45 $ per day

Did Vince receive enough money? No

5M-1302

2 Pts.

OK 2pts ach

31 The table below shows the amounts of money Vince receives for selling bunches of flowers at the farmers' market.

Flower Sales

Number of Bunches	20	25	30	35
Amounts of Money	$120	$150	$180	$210

Part A Complete the table to show the amount of money Vince receives for selling 35 bunches of flowers.

Part B On the lines below, explain the rule used in the pattern.

The pattern would be adding 30 to the money amount

Part C Vince pays $45 each day for a place at the farmers' market. One day, he sold 8 bunches of flowers. Did Vince receive enough money to pay for his place that day?

In the space below, show your work and explain your reasoning, and write your answer on the line.

Did Vince receive enough money? no

1 point anchor

1 Pt.

5M-1303

31 The table below shows the amounts of money Vince receives for selling bunches of flowers at the farmers' market.

Flower Sales

Number of Bunches	20	25	30	35
Amounts of Money	$120	$150	$180	111

Part A Complete the table to show the amount of money Vince receives for selling 35 bunches of flowers.

Part B On the lines below, explain the rule used in the pattern.

The rule is add 3 to each one.

Part C Vince pays $45 each day for a place at the farmers' market. One day, he sold 8 bunches of flowers. Did Vince receive enough money to pay for his place that day?

In the space below, show your work and explain your reasoning, and write your answer on the line.

111
+ 111
222

Because, he would have 222

Did Vince receive enough money? yes

OK OP anchor

0 Pts.

5M-1304

2004 CSAP Released Items

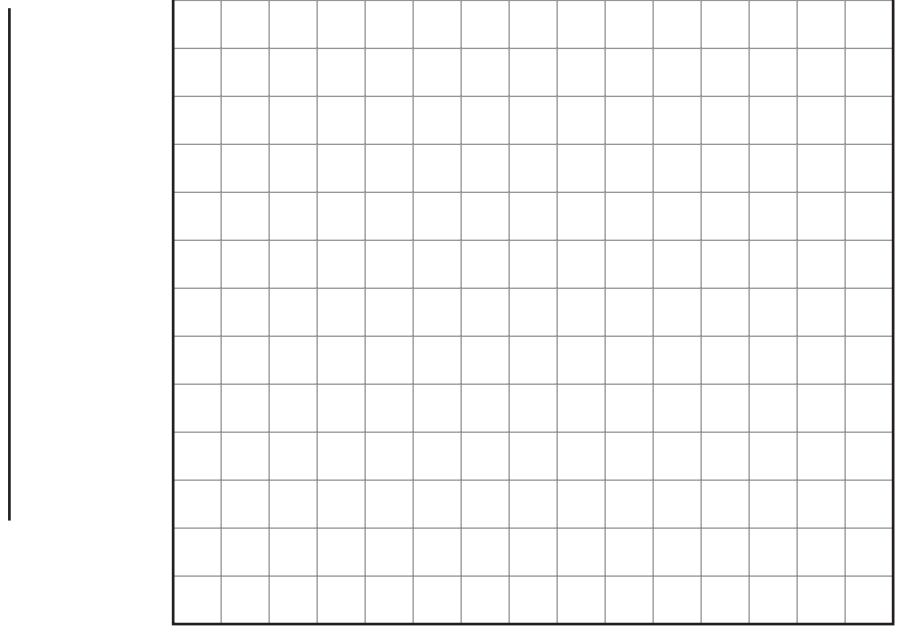
Grade 6 Mathematics

3 The table below shows the number of visitors to Bent's Fort from March through September.

Visitors to Bent's Fort

Month	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.
Number of Visitors (rounded to nearest hundred)	1,600	3,200	4,100	4,300	6,100	3,300	2,400

Part A On the grid below, construct a **bar graph** to show the information from the table.



Use information from the graph on page 6 to answer the following questions.

Part B According to the months shown, what were the three most popular months to visit Bent's Fort?

1) _____

2) _____

3) _____

Part C Which month had the greatest change in the number of visitors compared to the previous month?

_____

Part D On the lines below, describe the month-to-month change in the number of visitors from March through September.

_____

_____

_____

_____

_____

_____

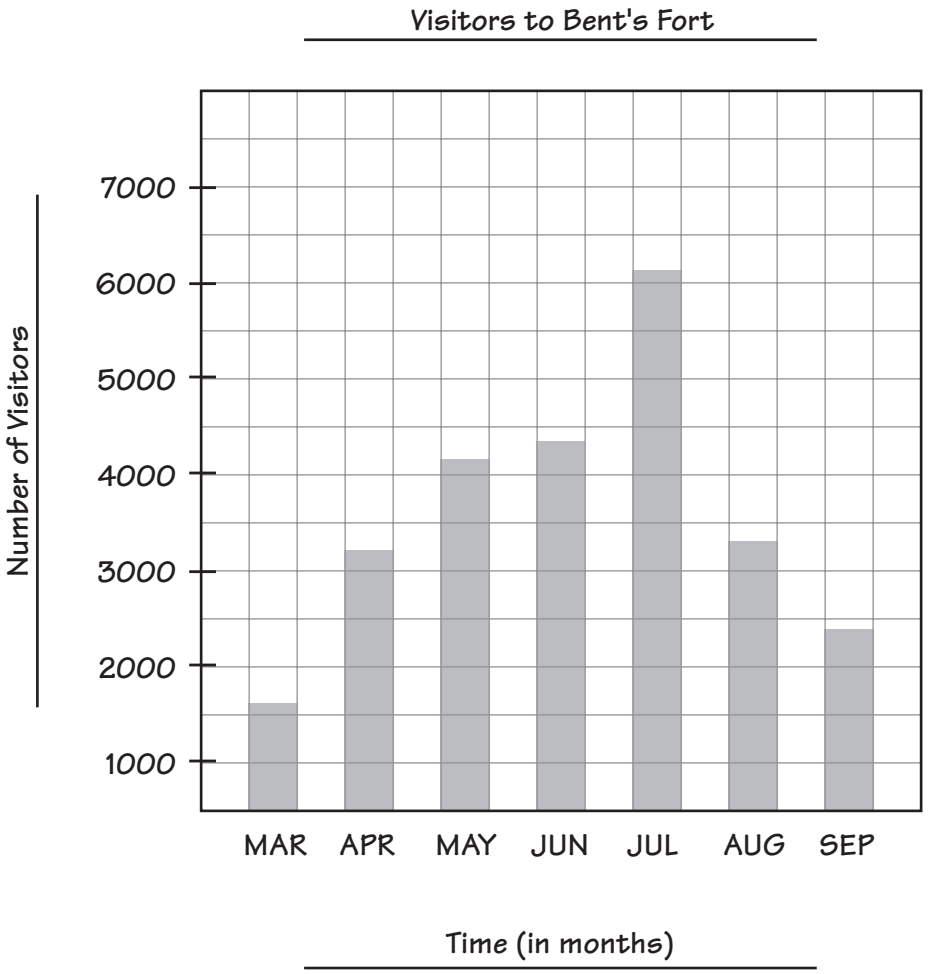
_____

Item 3:

Rubric

Exemplary Response

Part A

- 

Part B

- 1) May
  2) June
  3) July

Part C

- August

Part D

- The number of visitors increased each month from March through July, decreased sharply in August, and continued to fall in September.

OR

- Other valid statement

Score Points: Apply 4-point holistic rubric.

This item appeared at only one grade level.

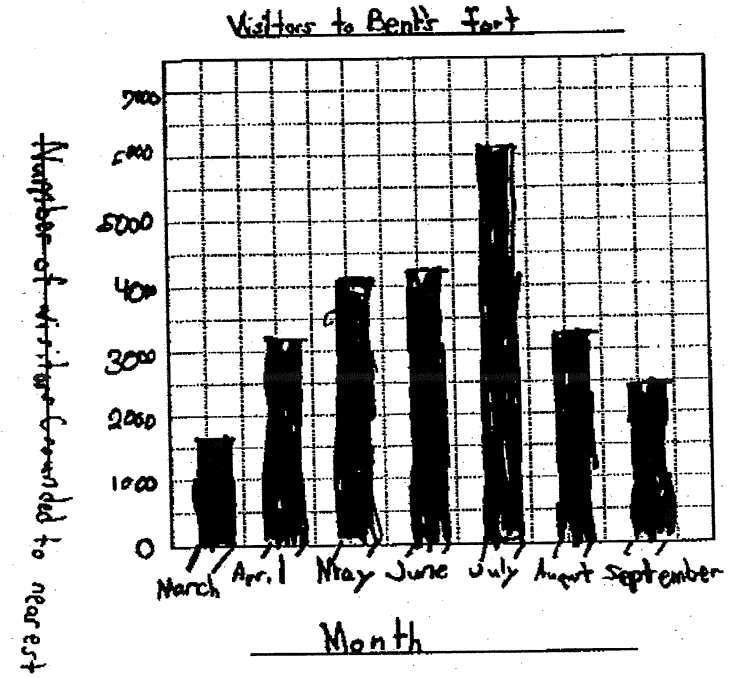
Grade 6
Standard 3.1a: Data Analysis, Probability, and Statistics
Subcontent Area: not classified
Rater Severity Study 2004

40 The table below shows the number of visitors to Bent's Fort from March through September.

Visitors to Bent's Fort

Month	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.
Number of Visitors (rounded to nearest hundred)	1,600	3,200	4,100	4,300	6,100	3,300	2,400

Part A On the grid below, construct a bar graph to show the information from the table.



Use information from the graph to answer the questions on page 31.

4/10/02

4 point anchor

J. Gallucci

Part B According to the months shown, what were the three most popular months to visit Bent's Fort?

1) May

2) June

3) July

Part C Which month had the greatest change in the number of visitors compared to the previous month?

August

Part D On the lines below, describe the month-to-month change in the number of visitors from March through September.

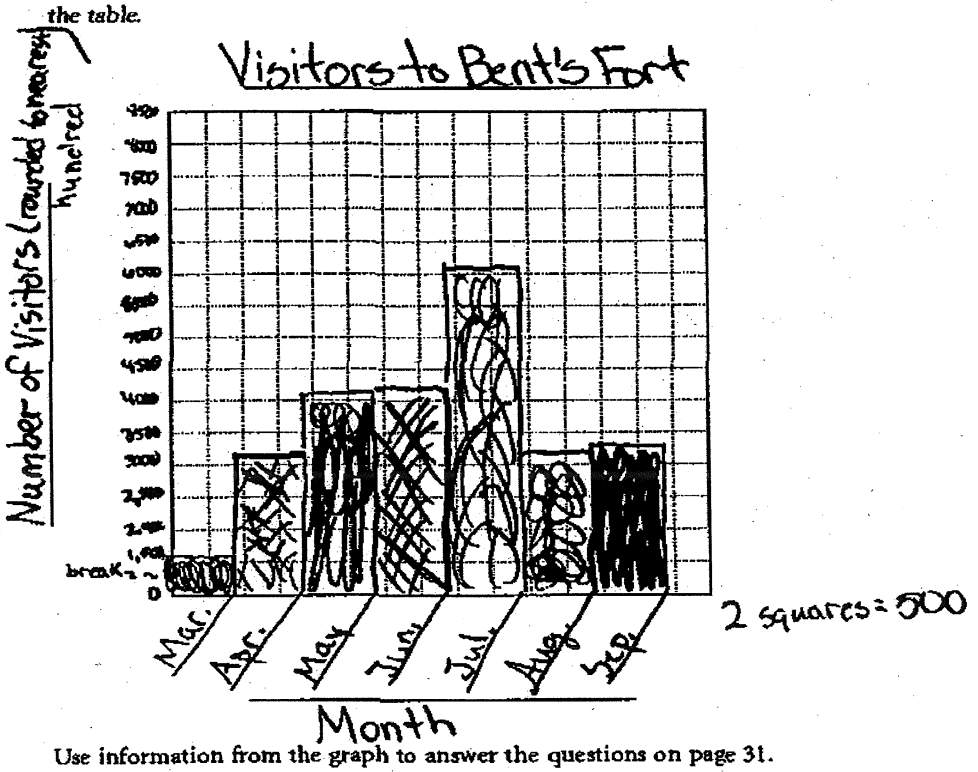
March started real low at 1600 people then April started the big rise along with May and June. Then July towered up with 6,100 people. In the later months (August, September) The number began to decrease

40 The table below shows the number of visitors to Bent's Fort from March through September.

Visitors to Bent's Fort

Month	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.
Number of Visitors (rounded to nearest hundred)	1,600	3,200	4,100	4,300	6,100	3,300	2,400

Part A On the grid below, construct a bar graph to show the information from *the table.*



Use information from the graph to answer the questions on page 31.

4/10/02

3 point anchor paper

J. Gallivan

Part B According to the months shown, what were the three most popular months to visit Bent's Fort?

1) July

2) May

3) June

Part C Which month had the greatest change in the number of visitors compared to the previous month?

April

Part D On the lines below, describe the month-to-month change in the number of visitors from March through September.

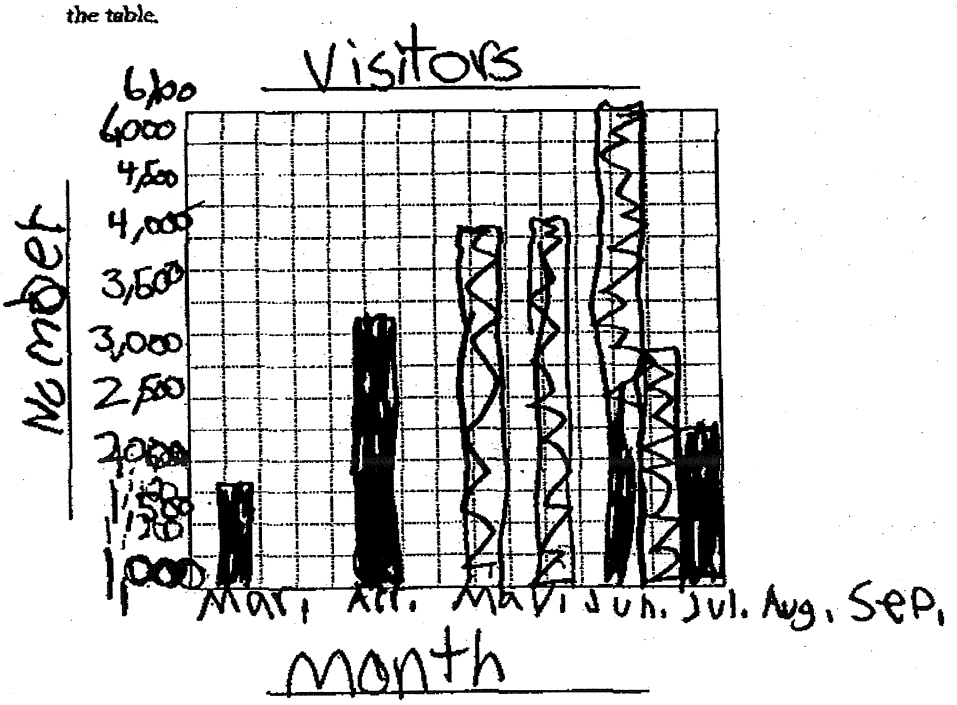
In March it started out at 1,600, then in April it boosted up to 3,200. In May there were 4,100 visitors and in June 4,300. In July there was the highest amount which was 6,100, and in August it decreased to 3,300. In September it decreased even more to 2,400.

40 The table below shows the number of visitors to Bent's Fort from March through September.

Visitors to Bent's Fort

Month	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.
Number of Visitors (rounded to the nearest hundred)	1,600	3,200	4,100	4,300	6,100	3,300	2,400

Part A On the grid below, construct a bar graph to show the information from the table.



2-pt anchor
J. Gallucci
4/10/02

Part B According to the months shown, what were the three most popular months to visit Bent's Fort?

1) July

2) June

3) May

Part C Which month had the greatest change in the number of visitors compared to the previous month?

July

Part D On the lines below, describe the month-to-month change in the number of visitors from March through September.

because it is warmer in the summer.

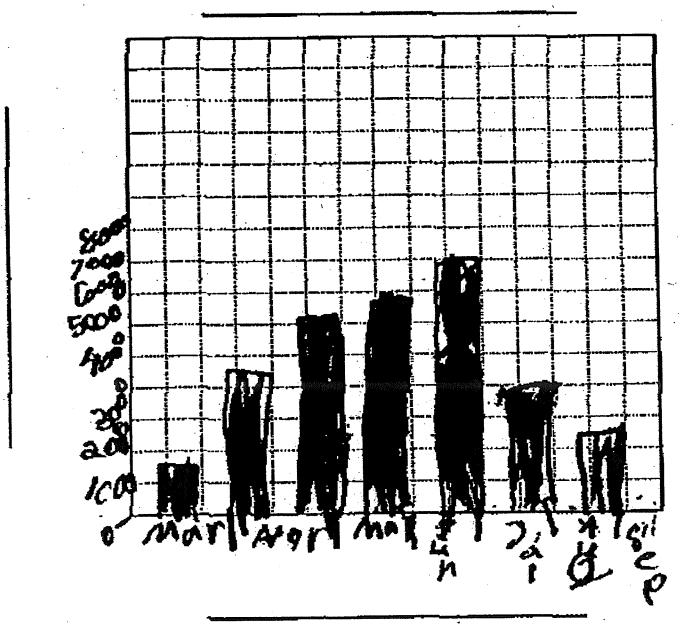
2 point anchor paper

40 The table below shows the number of visitors to Bent's Fort from March through September.

Visitors to Bent's Fort

Month	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.
Number of Visitors (rounded to nearest hundred)	1,600	3,200	4,100	4,300	6,100	3,300	2,400

Part A On the grid below, construct a bar graph to show the information from the table.



Use information from the graph to answer the questions on page 31.

1 pt anchor
4/10/02 J. Gallucci

Part B According to the months shown, what were the three most popular months to visit Bent's Fort?

1) 2

2) 1

3) 3

Part C Which month had the greatest change in the number of visitors compared to the *previous month*?

15

Part D On the lines below, describe the month-to-month change in the number of visitors from March through September.

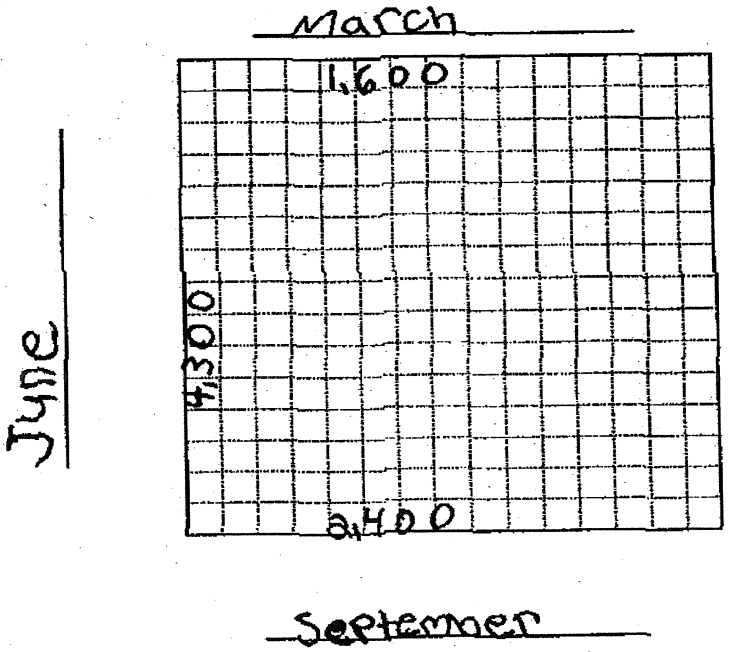
I think it is 15.

40 The table below shows the number of visitors to Bent's Fort from March through September.

Visitors to Bent's Fort

Month	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.
Number of Visitors (rounded to nearest hundred)	1,600	3,200	4,100	4,300	6,100	3,300	2,400

Part A On the grid below, construct a bar graph to show the information from the table.



0-pt anchor
J. Gallucci
4/10/02

Part B According to the months shown, what were the three most popular months to visit Bent's Fort?

1) _____

2) _____

3) _____

Part C Which month had the greatest change in the number of visitors compared to the previous month?

July

Part D On the lines below, describe the month-to-month change in the number of visitors from March through September.

2004 CSAP Released Items

Grade 7 Mathematics

(This Item is also shared at Grade 8)

4 The Denver Broncos played 16 games in the 1999 regular season. The table below shows the total points scored by the Broncos for each game.

Denver Broncos
Points Scored in 1999 Season

Game	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Points	36	42	33	22	19	21	44	21	30	27	38	38	38	31	7	38

The mean of the points scored by the Broncos in 1999 is 30 points (rounded to the nearest whole number).

Part A Find the median of the points scored per game in the 1999 season. In the space below, show your work and write your answer on the line.

Median of points _____

Part B Find the mode of points scored per game in the 1999 season. In the space below, show your work and write your answer on the line.

Mode of points _____

Part C Find the range of points scored in the 1999 season. In the space below, show your work and write your answer on the line.

Range of points _____

Part D Carmen is writing an article about the Broncos for the school newspaper. She will use one measure of central tendency from the 1999 season to describe as accurately as possible the Broncos' ability to score points. On the lines below, write the measure of central tendency (mean, median, or mode) she should use and explain your thinking.

_____

_____

_____

_____

_____

Item 4:

Rubric

Exemplary Response

Part A

- Median of points 32

AND

- The points scored arranged from lowest to highest are 7, 19, 21, 21, 22, 27, 30, 31, 33, 36, 38, 38, 38, 38, 42, 44 points and the middle two numbers are 31 and 33, and the mean of 31 and 33 is 32.

Part B

- Mode of points 38

AND

- The score 38 appears 4 times and is the most frequent score.

Part C

- Range of points 37

OR

- Range of points 7 to 44

AND

- The low score is 7 and the high score is 44, and the difference is 37.

Part D

- Carmen should use the median of points scored to most accurately describe the ability of the Broncos to score points. The mean includes an uncharacteristic low score of 7 points. The mode of 38 is too high a score to be an accurate description.

  OR

- Other valid response

Score Points: Apply 3-point holistic rubric.

This item appeared at two adjacent grade levels.

Grade 7
Standard 3.2a: Data Analysis, Probability, and Statistics
Subcontent Area: not classified

Grade 8
Standard 3.2a: Data Analysis, Probability, and Statistics
Subcontent Area: not classified

Item 35 The Denver Broncos played 16 games in the 1999 regular season. Study the table below, which shows the total points scored by the Broncos for each game.

Denver Broncos
Points Scored in 1999 Season

Game	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Points	36	42	63	42	49	21	44	21	30	27	38	38	28	31	17	28

The mean of the points scored by the Broncos in 1999 is 30 points (rounded to the nearest whole number).

Part A Find the median of the points scored per game in the 1999 season. In the space below, show your work and write your answer on the line.

median = middle

7, 19, 21, 21, 22, 27, 30, 31, 33, 36, 38, 38, 38, 42, 44

31
+33
64
2

Median of points 32 points

Part B Find the mode of points scored per game in the 1999 season. In the space below, show your work and write your answer on the line.

mode = # most often

7, 19, 21, 21, 22, 27, 30, 21, 33, 36, (38, 38, 38, 38), 42, 44

38 4 times

Mode of points 38 points

Part C Find the range of points scored in the 1999 season. In the space below, show your work and write your answer on the line.

Range = highest pts − lowest pts

highest = 44 lowest = 7

$$\begin{array}{r} 44 \\ -\ 7 \\ \hline 37 \end{array}$$

Range of points 37 pts

Part D Carmen is writing an article about the Broncos in the school newspaper. She will use one measure of central tendency from the 1999 season to describe as accurately as possible the Broncos' ability to score points. On the lines below, write the measure of central tendency (mean, median, or mode) she should use and explain your thinking.

She should use the mode. That way, she will know the number of points the Broncos score most often without including numbers that are too high or too low and might throw off her answer.

CSAP 2004 Rib 1- Item 35
Denver Broncos Scoring Analysis - 1999
3 Point Anchor
The student effectively communicates a mathematical understanding of the task by showing a correct median, mode and range of points with support. In part D, the student selects mode and provides support for their selection.

3 ANCHOR **8M-0301a**

Item 35

The Denver Broncos played 16 games in the 1999 regular season. Study the table below, which shows the total points scored by the Broncos for each game.

Denver Broncos
Points Scored in 1999 Season

Game	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Points	36	42	33	22	19	21	44	21	30	27	38	38	38	31	7	38

The mean of the points scored by the Broncos in 1999 is 30 points (rounded to the nearest whole number).

Part A Find the median of the points scored per game in the 1999 season. In the space below, show your work and write your answer on the line.

7, 19, 21, 21, 22, 27, 30, 31, 33, 36, 38, 38, 38, 38
42, (44)

Median of points 44

Part B Find the mode of points scored per game in the 1999 season. In the space below, show your work and write your answer on the line.

7, 19, 21, 21, 22, 27, 30, 31, 33, 36, 38, 38 38, 38, 40, 44

Mode of points 38

Part C Find the range of points scored in the 1999 season. In the space below, show your work and write your answer on the line.

$$\begin{array}{r} 44 \\ -\ 7 \\ \hline 37 \end{array}$$

Range of points 37

Part D Carmen is writing an article about the Broncos in the school newspaper. She will use one measure of central tendency from the 1999 season to describe as accurately as possible the Broncos' ability to score points. On the lines below, write the measure of central tendency (mean, median, or mode) she should use and explain your thinking.

I think Carmen should write her article on the mode because that's the number that they mostly got.

CSAP 2004 Rib 1- Item 35
Denver Broncos Scoring Analysis - 1999
2 Point Anchor
The student shows some evidence of understanding by completing part of the task when showing a correct mode and range of points. The student shows lack of understanding in computing the median. Student selects and defines mode in part D.

2 ANCHOR

8M-0302a

Item 35

The Denver Broncos played 16 games in the 1999 regular season. Study the table below, which shows the total points scored by the Broncos for each game.

Denver Broncos
Points Scored in 1999 Season

Game	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Points	36	42	33	22	19	21	44	21	30	27	38	38	38	31	7	38

The mean of the points scored by the Broncos in 1999 is 30 points (rounded to the nearest whole number).

Part A Find the median of the points scored per game in the 1999 season. In the space below, show your work and write your answer on the line.

Median of points 30 & 21

Part B **Find the mode of points scored per game in the 1999 season. In the space below, show your work and write your answer on the line.**

Mode of points 22pts & 38pts.

Part C Find the range of points scored in the 1999 season. In the space below, show your work and write your answer on the line.

7, 19, 21, 21, 22, 27 30, 31, 33, 36, 38, 38, 38, 38, 42, 44

Range of points 7-44

Part D Carmen is writing an article about the Broncos in the school newspaper. She will use one measure of central tendency from the 1999 season to describe as accurately as possible the Broncos' ability to score points. On the lines below, write the measure of central tendency (mean, median, or mode) she should use and explain your thinking.

CSAP 2004 Rib 1- Item 35
Denver Broncos Scoring Analysis - 1999
1 Point Anchor
The student demonstrates some mathematical understanding of the task by computing a correct range of points. The student shows lack of understanding for median and mode and does not attempt to address part D.

1 ANCHOR

8M-0303a

Item 35 The Denver Broncos played 16 games in the 1999 regular season. Study the table below, which shows the total points scored by the Broncos for each game.

Denver Broncos
Points Scored in 1999 Season

Game	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Points	36	42	33	22	19	21	44	21	30	27	38	38	38	31	7	38

The mean of the points scored by the Broncos in 1999 is 30 points (rounded to the nearest whole number).

Part A Find the median of the points scored per game in the 1999 season. In the space below, show your work and write your answer on the line.

38
-36
2

I took the two ends and subtracted

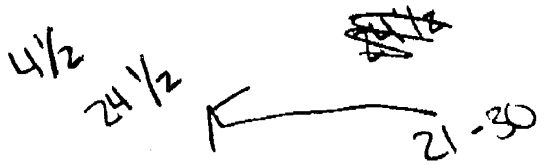
Median of points 2 points

Part B **Find the mode of points scored per game in the 1999 season. In the space below, show your work and write your answer on the line.**

38
-20
18

Mode of points 18

Part C **Find the range of points scored in the 1999 season. In the space below, show your work and write your answer on the line.**



Range of points 24 1/2 points

Part D **Carmen is writing an article about the Broncos in the school newspaper. She will use one measure of central tendency from the 1999 season to describe as accurately as possible the Broncos' ability to score points. On the lines below, write the measure of central tendency (mean, median, or mode) she should use and explain your thinking.**

Carmen, you should tell the people that the Broncos median is 2 pts. The mode for them is 18 pts. The range is about 24. If you don't understand any of this, I will send my work, with this letter.

CSAP 2004 Rib 1- Item 35
Denver Broncos Scoring Analysis - 1999
0 Point Anchor
The student demonstrates no mathematical understanding of the task by showing incorrect values and processes for median, mode and range of points. The student does not select a measurement in part D.

0 ANCHOR

8M-I35-0304a

2004 CSAP Released Items

Grade 8 Mathematics

5 Sam will mix together green, blue, and white paint. He mixes 5 pints of green paint and 7 pints of blue paint. He will make the mixture 25 percent white paint.

How many pints of white paint should Sam add to the mixture? In the space below, show your work and write your answer on the line.

_____ pints of white paint

Item 5:

Rubric

Exemplary Response

- **4** pints of white paint

AND

- The mixture before adding white contained 12 pints of paint. If 2 pints of white paint are added, the percent of white paint is $\frac{2}{14}$ = 14.3 percent, which is not 25 percent. If 3 pints of white paint are added, the percent of white paint is $\frac{3}{15}$ = 20 percent, which is not 25 percent. By adding 4 pints of white paint, the mixture total is 16 pints, and the percent of white paint is $\frac{4}{16}$ = 25 percent.

  OR

- Other valid response

Score Points: Apply 2-point holistic rubric.

This item appeared at only one grade level.

Grade 8
Standard 1.4a: Number Sense
Subcontent Area: proportional thinking

48 Sam will mix together green, blue, and white paint. He mixes 5 pints of green paint and 7 pints of blue paint. He will make the mixture 25 percent white paint.

How many pints of white paint should Sam add to the mixture? In the space below, show your work and write your answer on the line.

$\frac{75}{100} = \frac{12}{x}$

$75x = 1200$

$x = 16$

$75\overline{)1200}$ → 75, 450, 450, 0

$16 - 12 = 4$

4 pints of white paint

2 Point Anchor

4/12/04

48 Sam will mix together green, blue, and white paint. He mixes 5 pints of green paint and 7 pints of blue paint. He will make the mixture 25 percent white paint.

How many pints of white paint should Sam add to the mixture? In the space below, show your work and write your answer on the line.

5
+7
12
x 25
60
+240
300

3 pints of white paint

1 pt. Anchor

8M-1401

4/12/04

43 Sam will mix together green, blue, and white paint. He mixes 5 pints of green paint and 7 pints of blue paint. He will make the mixture 25 percent white paint.

How many pints of white paint should Sam add to the mixture? In the space below, show your work and write your answer on the line.

125
70
5
100

5 pints-green
7 pints-blue
13 pints

want 25% of white

20 pints of white paint

OR

~~0 Point Backup Anchor~~ 4/12/04

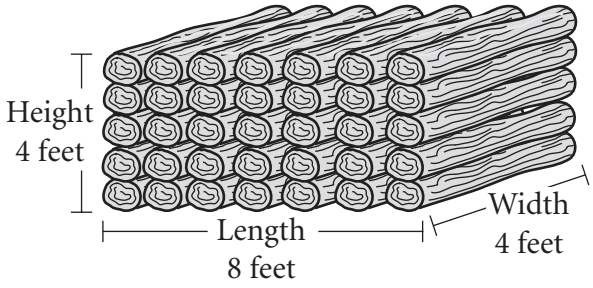
0 Pt. Anchor

8M-1421

2004 CSAP Released Items

Grade 8 Mathematics

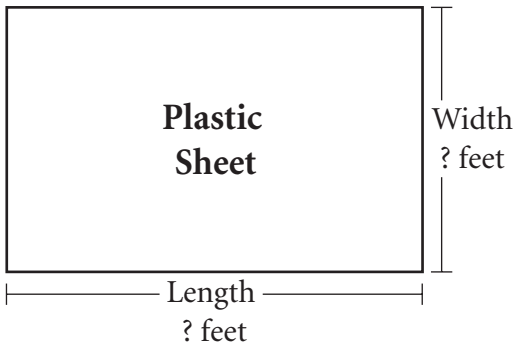
6 Carl has a stack of wood with the measurements shown below. He will cover the top and all 4 sides of the stack with a plastic sheet.



Part A What is the total surface area the plastic sheet must cover? In the space below, show your work and write your answer on the line.

_____ square feet

The diagram below represents a plastic sheet with unknown measurements.



Part B What are the dimensions of the smallest rectangular plastic sheet that can be used to cover the stack of wood? In the space below, show your work and write your answers on the lines.

Width _____ **Length** _____

Part C Carl added more logs to his stack of wood, increasing the length of the stack by 2 feet and increasing the height of the stack by 3 feet. By how many square feet did the area of the top and all four sides of the stack **increase**? In the space below, show your work and write your answer on the line.

Increase _____ square feet

Item 6:

Rubric

Exemplary Response

Part A

- 128 square feet

AND

- Long sides = (8ft × 4ft) × 2 = 64 ft^2
  Top = 8ft × 4ft = 32 ft^2
  Short sides = (4ft × 4ft) × 2 = 32 ft^2
  Surface area plastic sheet must cover = 64ft^2 + 32ft^2 + 32ft^2 = 128 ft^2

  OR

- Other valid response

Part B

- Width 12 (feet) Length 16 (feet)

Part C

- Increase 108 square feet

AND

- The new area is:
  Long sides = (10ft × 7ft) × 2 = $140ft^2$
  Top = 10ft × 4ft = $40ft^2$
  Short sides = (4ft × 7ft) × 2 = $56ft^2$
  Total (new) Area = $140ft^2 + 40ft^2 + 56ft^2 = 236ft^2$
  Total Increase in Area = $236ft^2 - 128ft^2 = 108ft^2$

  OR

- Other valid response

Score Points: Apply 4-point holistic rubric.

This item appeared at only one grade level.

Grade 8
Standard 4.5a: Geometry and Spatial Sense
Subcontent Area: geometry

43 Sam will mix together green, blue, and white paint. He mixes 5 pints of green paint and 7 pints of blue paint. He will make the mixture 25 percent white paint.

How many pints of white paint should Sam add to the mixture? In the space below, show your work and write your answer on the line.

125
70
5
100

5 pints-green
7 pints-blue
13 pints

want 25% of white

20 pints of white paint

OR

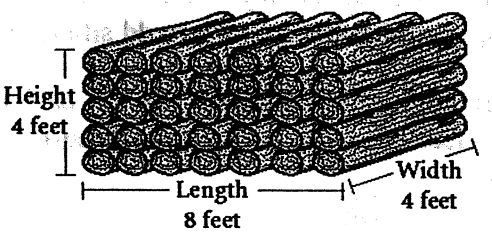
~~0 Point Backup Anchor~~ 4/12/04

0 Pt. Anchor

8M-1421

60

Carl has a stack of wood with the measurements shown below. He will cover the top and all 4 sides of the stack with a plastic sheet.

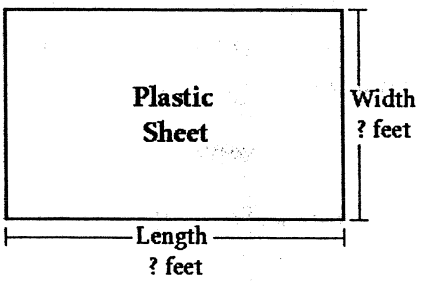


Part A What is the total surface area the plastic sheet must cover? In the space below, show your work and write your answer on the line.

2x face 8x4 = 32 ~~x2 = 64ft~~
2x Side 4x4 16x2 = 32ft
Top 8x4 32 = 32ft
128ft

128 square feet

The diagram below represents a plastic sheet with unknown measurements.



4 pt Anchor

4/12/04

8M-1001

60

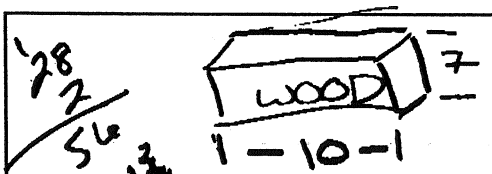
Part B What are the dimensions of the smallest rectangular plastic sheet that can be used to cover the stack of wood? In the space below, show your work and write your answers on the lines.

$4+8+4=16$

$4*4+4=12$

Width 12 Length 16

Part C Carl added more logs to his stack of wood, increasing the length of the stack by 2 feet and increasing the height of the stack by 3 feet. By how many square feet did the area of the top and all four sides of the stack increase? In the space below, show your work and write your answer on the line.



28 2 56 236 −128 108

FR+BK 10x7=70 x2 140

2 SI 4x7=28x2

Top = 40ft

2 SIDE = 56ft

Ft+Bk = 140ft

236

Increase 108 square feet

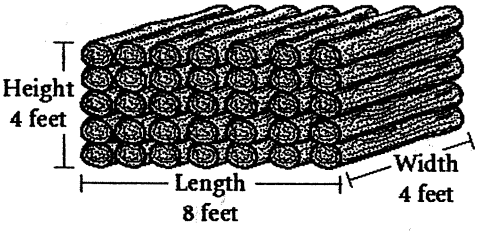
4 pt Anchor

4/17/04

8M-1001

60

Carl has a stack of wood with the measurements shown below. He will cover the top and all 4 sides of the stack with a plastic sheet.



Part A What is the total surface area the plastic sheet must cover? In the space below, show your work and write your answer on the line.

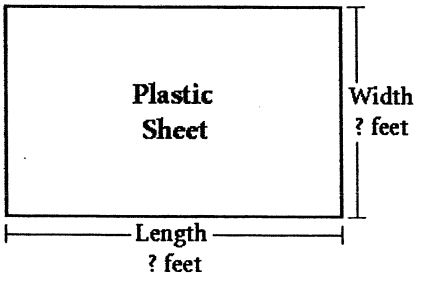
front = 32ft²
back = 32ft²
sideR = 16ft²
sideL = 16ft²
top = 32ft²

128

128

_____ square feet

The diagram below represents a plastic sheet with unknown measurements.



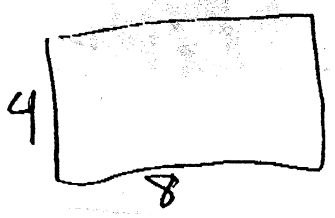
3 pt Anchor

4/12/04

8M-1002

60

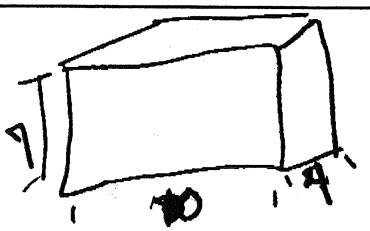
Part B What are the dimensions of the smallest rectangular plastic sheet that can be used to cover the stack of wood? In the space below, show your work and write your answers on the lines.



Width 4 Length 8

Part C Carl added more logs to his stack of wood, increasing the length of the stack by 2 feet and increasing the height of the stack by 3 feet. By how many square feet did the area of the top and all four sides of the stack increase? In the space below, show your work and write your answer on the line.

Front = 70
Back = 70
SideL = 28
SideR = 28
top = +40
256
- 128
108



Increase 108 square feet

4/1/25 4

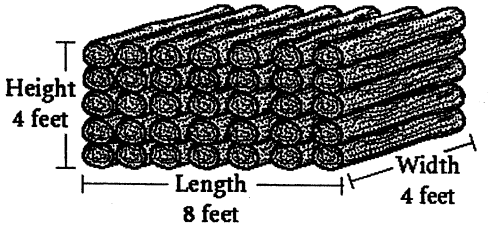
B2

3 pt Anchor

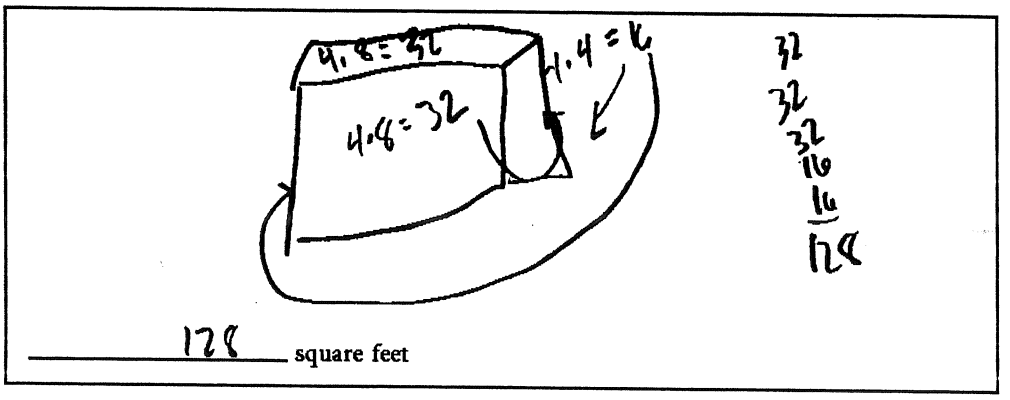
8M-1002

60

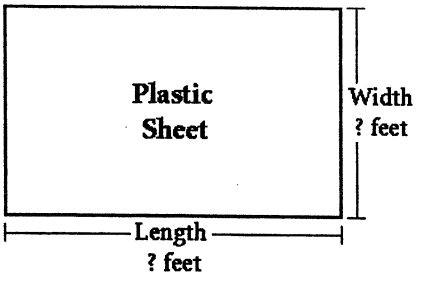
Carl has a stack of wood with the measurements shown below. He will cover the top and all 4 sides of the stack with a plastic sheet.



Part A What is the total surface area the plastic sheet must cover? In the space below, show your work and write your answer on the line.



The diagram below represents a plastic sheet with unknown measurements.



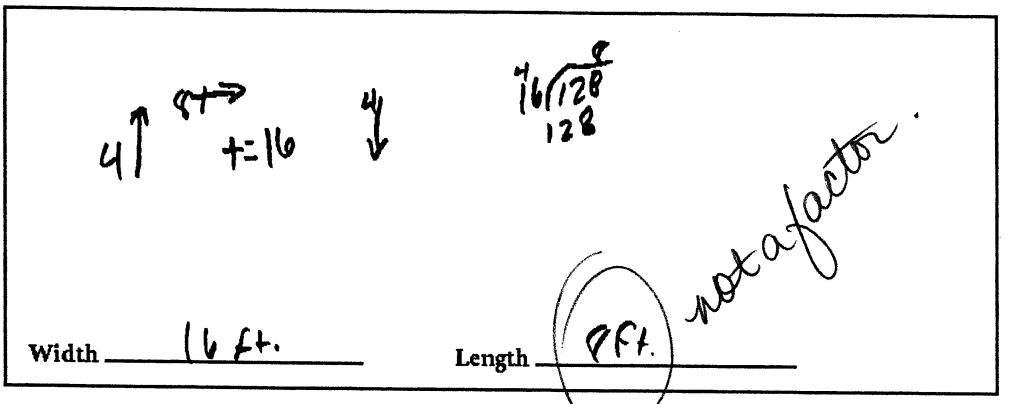
2 pt Backup Anchor

4/12/04

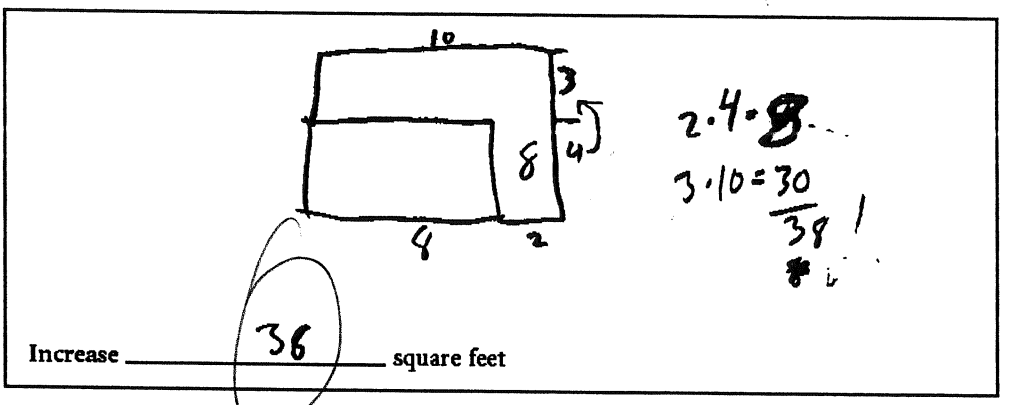
8M-1019

60

Part B What are the dimensions of the smallest rectangular plastic sheet that can be used to cover the stack of wood? In the space below, show your work and write your answers on the lines.



Part C Carl added more logs to his stack of wood, increasing the length of the stack by 2 feet and increasing the height of the stack by 3 feet. By how many square feet did the area of the top and all four sides of the stack increase? In the space below, show your work and write your answer on the line.



CSAP 2004 8th Grade Math Item 60
Covering a Stack of Logs
Score Point 2
The response lacks adequate evidence of the learning and strategic tools that are needed to complete the task. Part of the task is accomplished.
a) correct with work shown
b) ~~incorrect~~ part of work correct
c) incorrect needs more instruction

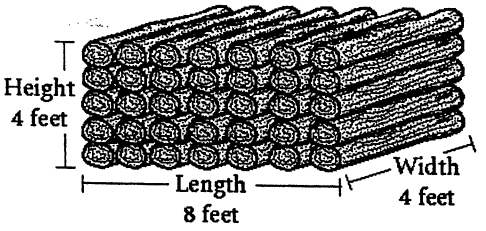
2 pts Backup Anchor

4/12/04

8M-1019

60

Carl has a stack of wood with the measurements shown below. He will cover the top and all 4 sides of the stack with a plastic sheet.



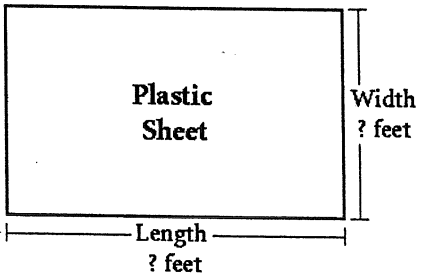
Part A What is the total surface area the plastic sheet must cover? In the space below, show your work and write your answer on the line.

Include bottom

1 4·4 = 16
2 4·4 = 16
3 4·8 = 32
4 4·8 = 32
5 8·4 = 32
6 8·4 = 32
160

160 square feet

The diagram below represents a plastic sheet with unknown measurements.

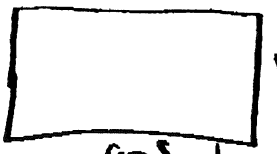


1 pt. BD 4/12/04

Anchor

60

Part B What are the dimensions of the smallest rectangular plastic sheet that can be used to cover the stack of wood? In the space below, show your work and write your answers on the lines.



length is bigger because it's a rectangle

Width 70 feet Length 90 feet

Part C Carl added more logs to his stack of wood, increasing the length of the stack by 2 feet and increasing the height of the stack by 3 feet. By how many square feet did the area of the top and all four sides of the stack increase? In the space below, show your work and write your answer on the line.

3·2=6

Increase 6 square feet

correctly demonstrates ~~a) makes an attempt at process~~ SA, but includes face ~~and side~~ bottom

~~a) makes an attempt at process~~ finds SA

b) incorrect

c) incorrect

1 pt.

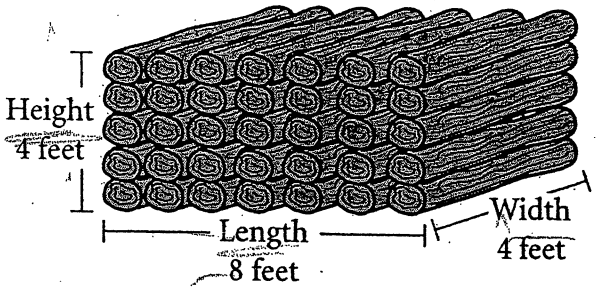
Anchor

4/12/04

8M-1049

60

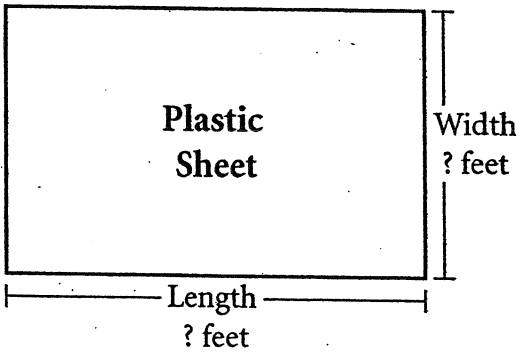
Carl has a stack of wood with the measurements shown below. He will cover the top and all 4 sides of the stack with a plastic sheet.



Part A What is the total surface area the plastic sheet must cover? In the space below, show your work and write your answer on the line.

512 square feet

The diagram below represents a plastic sheet with unknown measurements.



0 pt Anchor

4/12/04

8M-1005

60

Part B What are the dimensions of the smallest rectangular plastic sheet that can be used to cover the stack of wood? In the space below, show your work and write your answers on the lines.

Width 18,002 Length 18

Part C Carl added more logs to his stack of wood, increasing the length of the stack by 2 feet and increasing the height of the stack by 3 feet. By how many square feet did the area of the top and all four sides of the stack increase? In the space below, show your work and write your answer on the line.

Increase There would now be 56 logs. ~~square feet~~

0 pt Anchor

4/12/04

8M-1005

2004 CSAP Released Items

Grade 9 Mathematics

7 Paul is interested in buying a new car. The table below shows the prices for the last 8 cars sold by each of two local car dealers.

Dealer A	Dealer B
$16,500	$16,150
$16,450	$16,000
$17,200	$16,400
$16,200	$16,950
$17,400	$17,250
$16,050	$17,250
$17,000	$16,200
$15,850	$16,500

Part A Each dealer claims to have the best prices in town. Show one way that the information in the table can be used to support each dealer's claim. In the space below, show your work. Then write your explanation on the lines on the next page.

Part B Another car dealer, Dealer C, claims that his median price for cars is 5% less than any other car dealer's median price. Compared to Dealers A and B, what is the median price Dealer C will charge for a car? In the space below, show your work and write your answer on the line.

$ _____

Item 7:

Rubric

Exemplary Response

Part A

- Dealer A mean:
  $\frac{(\$16{,}500 + \$16{,}450 + \$17{,}200 + \$16{,}200 + \$17{,}400 + \$16{,}050 + \$17{,}000 + \$15{,}850)}{8} = \$16{,}581.25$

  Dealer A median: $\frac{(\$16{,}500 + \$16{,}450)}{2} = \$16{,}475$

  Dealer B mean:
  $\frac{(\$16{,}150 + \$16{,}000 + \$16{,}400 + \$16{,}950 + \$17{,}250 + \$17{,}250 + \$16{,}200 + \$16{,}500)}{8} = \$16{,}587.50$

  Dealer B median: $\frac{(\$16{,}400 + \$16{,}500)}{2} = \$16{,}450$

  OR

- Other valid response

AND

- Dealer A has a lower mean price.

  OR

- Dealer A has the lowest price.

AND

- Dealer B has a lower median price.

Part B

- $15,627.50

AND

- $16,450 × 0.05 = $822.50

AND

- $16,450 − $822.50 = $15,627.50

OR

- $16,450 × 0.95 = $15,627.50

OR

- Other valid process

Score Points: Apply 3-point holistic rubric.

This item appeared at only one grade level.

Grade 9
Standard 3.2c: Data Analysis, Probability, and Statistics
Subcontent Area: not classified

9m-5301

23 Paul is interested in buying a new car. The table below shows the prices for the last 8 cars sold by each of two local car dealers.

	Dealer A	Dealer B
5	$16,500	$16,150
4	$16,450	$16,000
7	$17,200	$16,400
3	$16,200	$16,950
6	$17,400	$17,250
2	$16,050	$17,250
1	$17,000	$16,200
8	$15,850	$16,500

Part A Each dealer claims to have the best prices in town. Show one way that the information in the table can be used to support each dealership's claim. In the space below, show your work. Then write your explanation on the lines.

Dealer A
132650/8
Mean = 16581.25
Median = 16,475

Dealer B
132700/8
Mean = 16587.5
Median = 16450

Dealer A can claim to have the best prices because they have the best mean. Dealer B can claim to have the best prices because they have the better median. Dealer A actually has the best most prices because they have the better average.

9M-0641

3 pt Anchor

9m 5301a

Part B Another car dealer, Dealer C, claims that his median price for cars is 5% less than any other car dealer's median price Compared to Dealers A and B, what is the median price Dealer C will charge for a car? In the space below, show your work and write your answer on the line.

Dealer C
$\frac{5}{100} \cdot \frac{x}{16450}$
$100x = 82250$
$x = 822.5$
$16450 - 822.5$
15627.5

Dealer A
$\frac{5}{100} \cdot \frac{x}{16475}$
$100x = 82375$
$x = 823.75$
$16475 - 823.75$
15651.25

$ 15639.38

3 MP

9M-0041a

9M-5302

Paul is interested in buying a new car. The table below shows the prices for the last 8 cars sold by each of two local car dealers.

Dealer A	Dealer B
$16,500	$16,150
$16,450	$16,000
$17,200	$16,400
$16,200	$16,950
$17,400	$17,250
$16,050	$17,250
$17,000	$16,200
$15,850	$16,500

Part A Each dealer claims to have the best prices in town. Show one way that the information in the table can be used to support each dealership's claim. In the space below, show your work. Then write your explanation on the lines.

Comparison

16,500 > 16,150
16,450 > 16,000
17,200 > 16,400
16,200 < 16,950
17,400 > 17,250
16,050 < 17,250
17,000 > 16,200
15,850 < 16,500

It shows that it depends on the car because for some of the car Dealer A's car is more expensive than dealer B's, but for others it is Dealer B's cars which are more expensive.

9M-0042

2 pt Anchor

9M-5302a

Part B Another car dealer, Dealer C, claims that his median price for cars is 5% less than any other car dealer's median price. Compared to Dealers A and B, what is the median price Dealer C will charge for a car? In the space below, show your work and write your answer on the line.

A = 15,850; 16,050; 16,200; 16,450; 16,500; 17,000; 17,250; 17,400

16,475

B = 16,000; 16,150; 16,200; 16,400; 16,500; 16,950; 17,250; 17,25

16,450

16,450 − 5%

16,450 × .05

822.5

16,450 − 822.5

$ 15,627.50

9M-0042a

9M-5303

Paul is interested in buying a new car. The table below shows the prices for the last 8 cars sold by each of two local car dealers.

Dealer A	Dealer B
$16,500	$16,150
$16,450	$16,000
$17,200	$16,400
$16,200	$16,950
$17,400	$17,250
$16,050	$17,250
$17,000	$16,200
$15,850	$16,500

131,800

115,450

Part A Each dealer claims to have the best prices in town. Show one way that the information in the table can be used to support each dealership's claim. In the space below, show your work. Then write your explanation on the lines.

total Amount of money made for:
Dealer A = $131,800 Dealer B = $115,450
Amount of diffesence = $16,350

Dealer B has better prices than Dealer A. This shows just by looking at the purchases of the 8 cars and comparing the two, and by adding up all the money that was made. Dealer B made about 1/2 as much as A.

9M-0043
1 pt Anchor

9M-5303a

Part B Another car dealer, Dealer C, claims that his median price for cars is 5% less than any other car dealer's median price. Compared to Dealers A and B, what is the median price Dealer C will charge for a car? In the space below, show your work and write your answer on the line.

Dealer B = 16,950
+ 17,250
34,200

34,200 ÷ 2 = 17,100

17,100 × .05 = 855

16,800 × .05 = 840

Dealer A =
16,200
17,400
33,600

33,600 ÷ 2 = 16,800

$ 847.5

9M-0043a

9M-5364

23 Paul is interested in buying a new car. The table below shows the prices for the last 8 cars sold by each of two local car dealers.

	Dealer A	Dealer B
	$16,500	$16,150
50	$16,450	$16,000
-750	$17,200	$16,400
1000	$16,200	$16,950
-1200	$17,400	$17,250
1350	$16,050	$17,250
-950	$17,000	$16,200
1150	$15,850	$16,500

Part A Each dealer claims to have the best prices in town. Show one way that the information in the table can be used to support each dealership's claim. In the space below, show your work. Then write your explanation on the lines.

a b

1 difference = 350
2 450
3 800
4 750
5 150
6 200
7 800
8 650

9M-0044
0 pt Anchor

9m 5304a

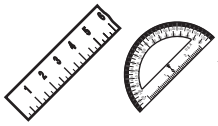
Part B Another car dealer, Dealer C, claims that his median price for cars is 5% less than any other car dealer's median price. Compared to Dealers A and B, what is the median price Dealer C will charge for a car? In the space below, show your work and write your answer on the line

$\$$ _____

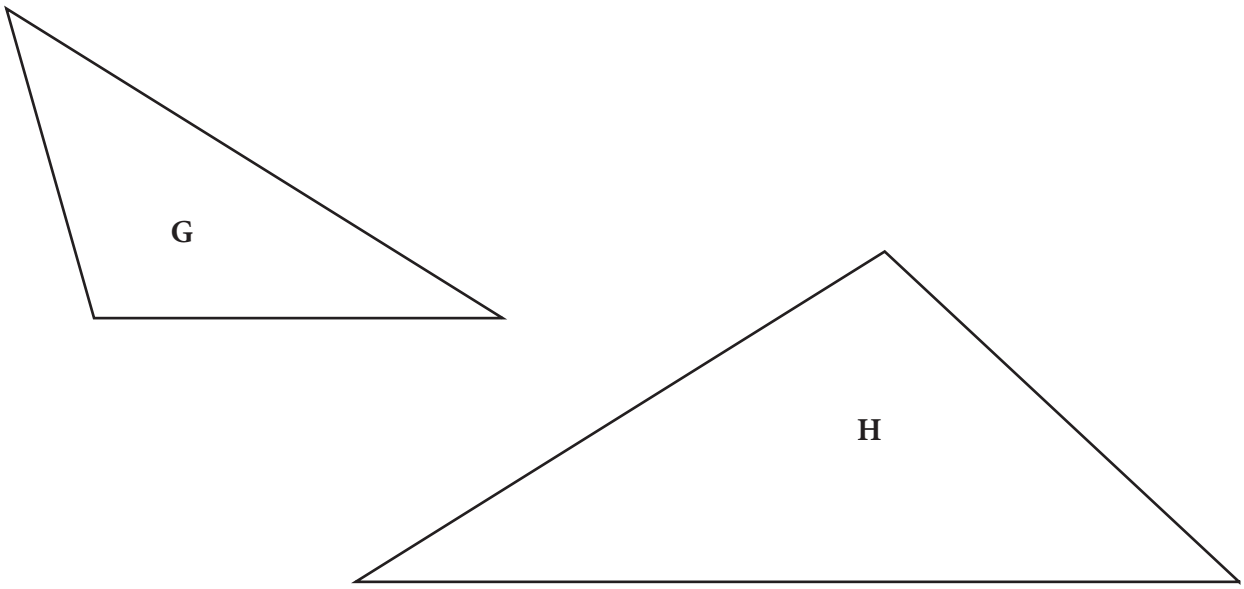
9m-0044a

2004 CSAP Released Items

Grade 10 Mathematics

8  Use your punch-out tools to help you solve this problem.

Study Triangle G and Triangle H below.



Are the triangles similar? Write your answer on the line. _____

In the space below, explain whether or not the triangles are similar. Use measurements to justify your answer and label the triangles with the measurements you used.

Item 8:

Rubric

Exemplary Response

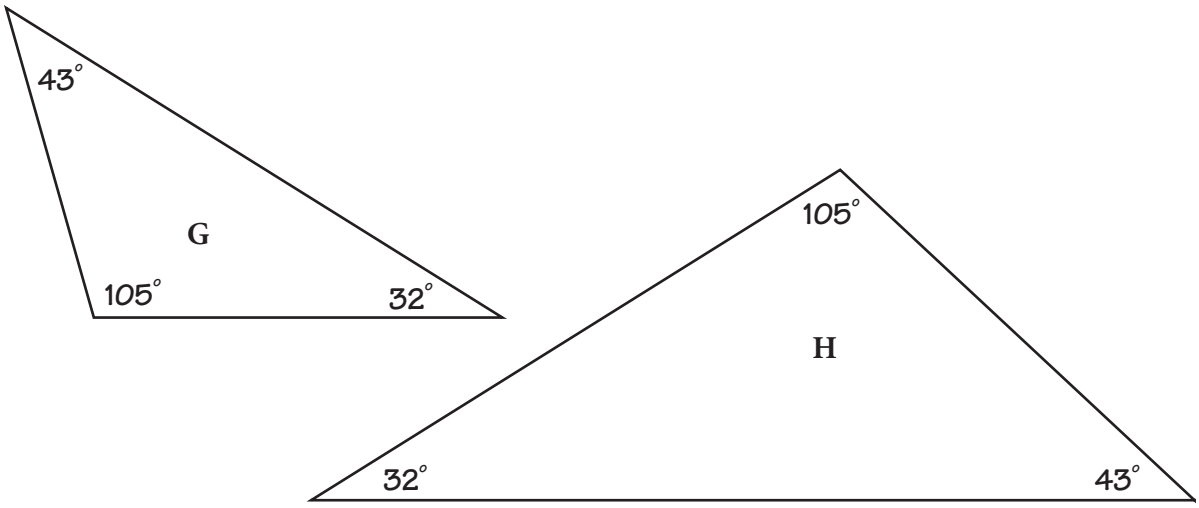
- Are the triangles similar? *Yes*

AND

- I measured the angles of both triangles. The angle measures in each triangle are the same, so the triangles are similar.

AND

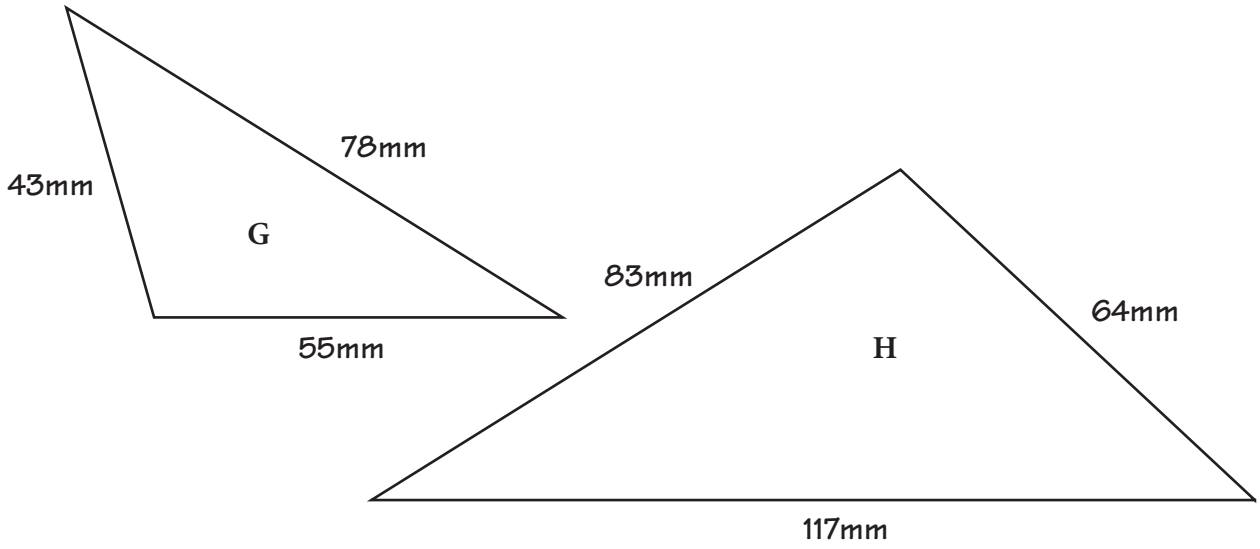
-



OR

- I measured the lengths of each of the sides of both triangles. Each side of Triangle H was 1.5 times the length of the corresponding side of Triangle G, so the triangles are similar.

AND

- 

OR

- Other valid response based on accepted similarity proofs (AA, SSS, ASA, SAS) with corresponding labels on the triangles

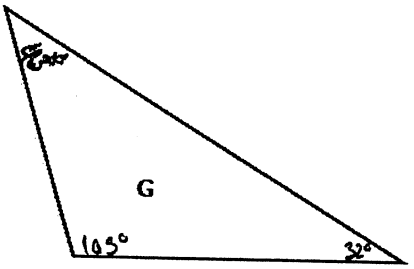
Score Points: Apply 2-point holistic rubric.

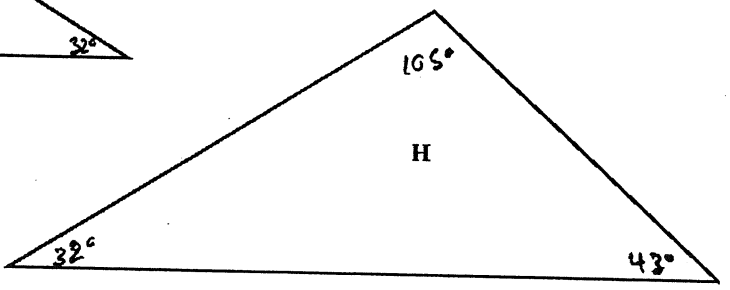
This item appeared at only one grade level.

Grade 10
Standard 4.3a: Geometry and Spatial Sense
Subcontent Area: not classified

25 Use your punch-out tools to help you solve this problem.

Study Triangle G and Triangle H below.

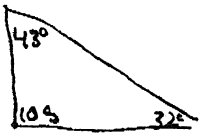




Are the triangles similar? Write your answer on the line. Yes

In the space below, explain whether or not the triangles are similar. Use measurements to justify your answer and label the triangles with the measurements you used.

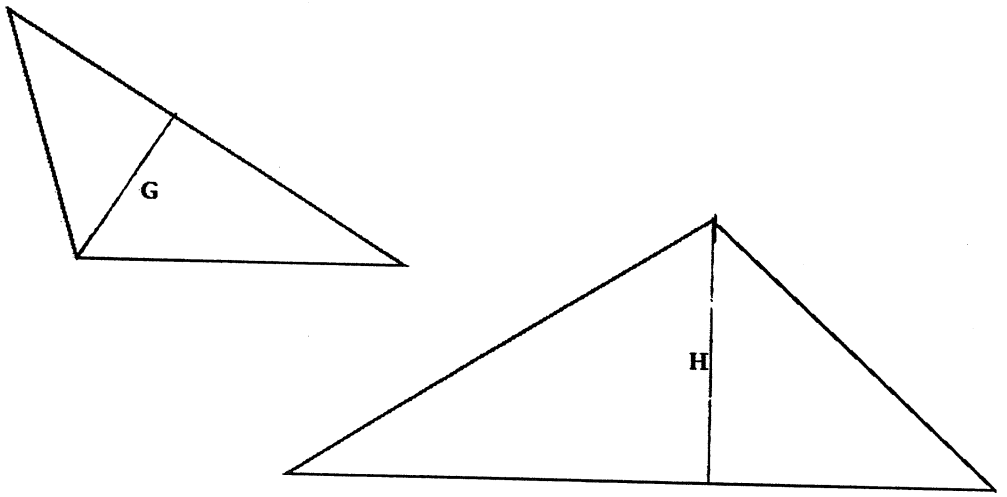
△G is similar to △H because they have the same ∠ measurements compared to each other by AAA.



KK 4/17

25 Use your punch-out tools to help you solve this problem.

Study Triangle G and Triangle H below.



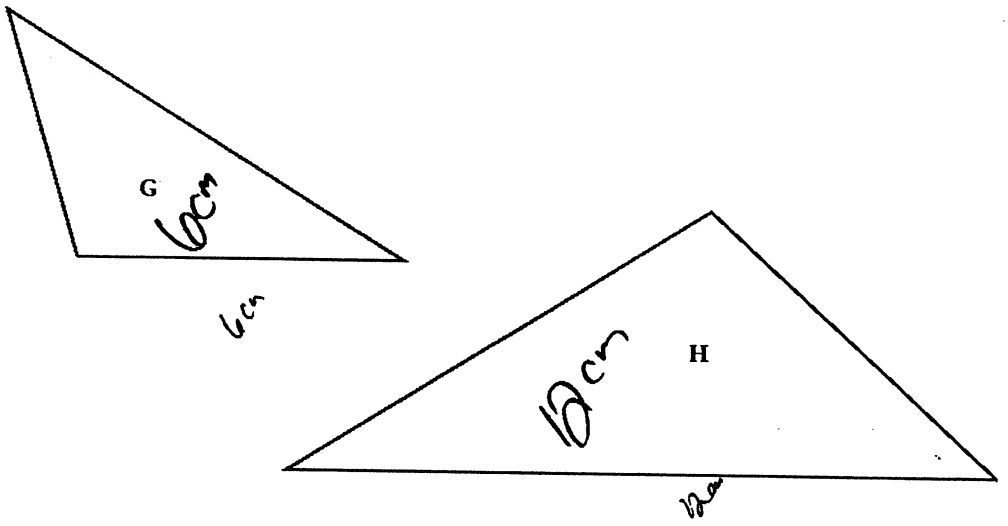
Are the triangles similar? Write your answer on the line. yes

In the space below, explain whether or not the triangles are similar. Use measurements to justify your answer and label the triangles with the measurements you used.

The triangles are similar because their angles have the same measurements.

25 Use your punch-out tools to help you solve this problem.

Study Triangle G and Triangle H below.



Are the triangles similar? Write your answer on the line. NO

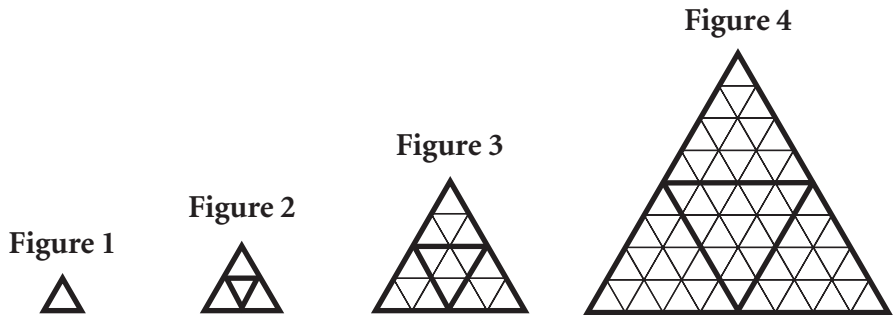
In the space below, explain whether or not the triangles are similar. Use measurements to justify your answer and label the triangles with the measurements you used.

Triangle H = 12cm
Triangle G = 6cm
Triangle G = 1/2 of H
= NO

2004 CSAP Released Items

Grade 10 Mathematics

9 Each figure in the pattern below is made from equilateral triangles with sides that are 1 unit in length.



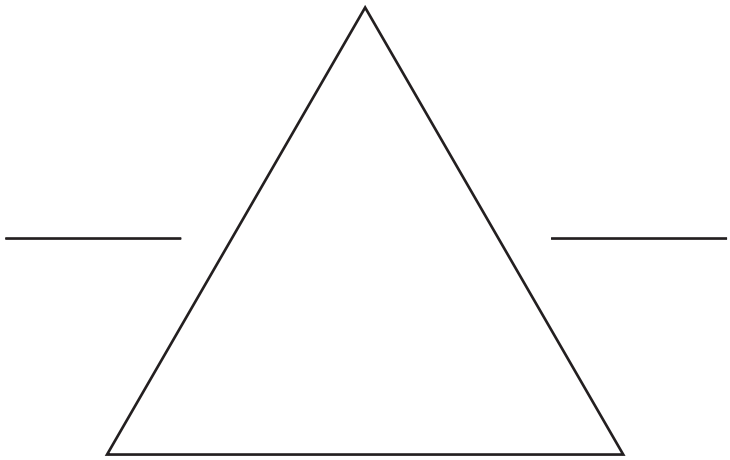
Part A Complete the table below to show the perimeter and area of each figure.

Figure	Perimeter	Area
1	3	$\frac{1}{4}\sqrt{3}$
2	6	$\sqrt{3}$
3	12	$4\sqrt{3}$
4		
5		
6		
7		

Part B On the lines below, describe the pattern of change in the perimeters of the figures.

Part C The outline of Figure 12 is shown below. Label the lengths of each side on the lines provided.

Figure 12



Drawing **not** to scale

Part D Find the perimeter and area of Figure 12. On the lines below, write your answers.

Perimeter _____ Area _____

Part E On the lines below, explain how you found the area of Figure 12.

Item 9:

Rubric

Exemplary Response

Part A

-

Figure	Perimeter	Area
1	3	$\frac{1}{4}\sqrt{3}$
2	6	$\sqrt{3}$
3	12	$4\sqrt{3}$
4	24	$16\sqrt{3}$
5	48	$64\sqrt{3}$
6	96	$256\sqrt{3}$
7	192	$1024\sqrt{3}$

Part B

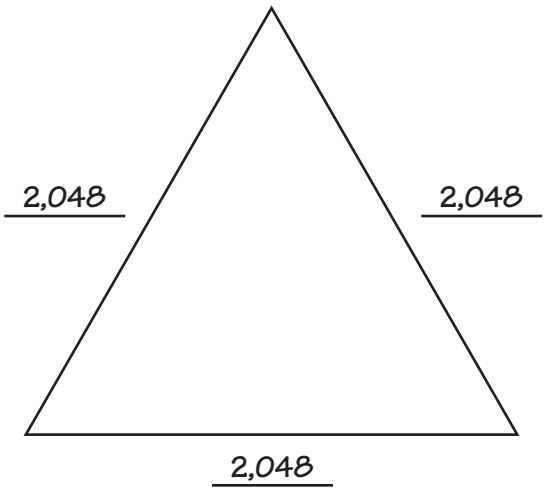
- The difference between each perimeter is the same as the previous perimeter. This pattern causes the perimeter of every figure to double.

  OR

- Other valid explanation

Part C

- **Figure 12**



Part D

- Perimeter **6,144** Area **1,048,576$\sqrt{3}$**

Part E

- The areas of the triangles increase by a factor of 4 each time. To get the area of the next triangle, I just multiplied the previous triangle's area times 4. Since the area of Figure 7 was 1,024$\sqrt{3}$, I just multiplied that by 4 five times.

  OR

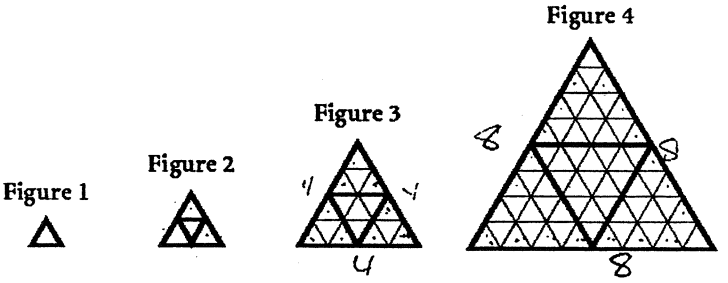
- Other valid explanations

Score Points: Apply 4-point holistic rubric.

This item appeared at only one grade level.

Grade 10
Standard 2.2a: Patterns, Functions, and Algebra
Subcontent Area: not classified

40 Each figure in the pattern below is made from equilateral triangles with sides that are 1 unit in length.



Part A Complete the table below to show the perimeter and area of each figure.

Figure	Perimeter	Area
1	3	$\frac{1}{4}\sqrt{3}$
2	6	$\sqrt{3}$
3	12	$4\sqrt{3}$
4	24	$16\sqrt{3}$
5	48	$64\sqrt{3}$
6	96	$256\sqrt{3}$
7	192	$1024\sqrt{3}$

Part B On the lines below, describe the pattern of change in the perimeters of the figures.

The perimeter of the figures double from the figure above it. You multiply by 2.

Part C The outline of Figure 12 is shown below. Label the lengths of each side on the lines provided.

8) 384 → 192 → 96 → 48 → 24 → 12 → 6

3) 6144 → 2048

10) 16384 → 8192 → 4096 → 2048

11) 32768 → 16384 → 8192 → 4096 → 2048

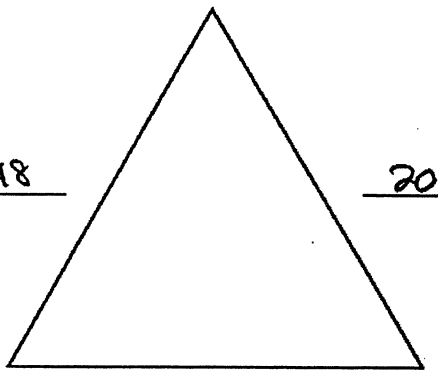
12) 61440 → 30720 → 15360 → 7680 → 3840 → 1920 → 960 → 480 → 240 → 120 → 60 → 30 → 14 → 12 → 24

10) 262144 → 65536 → 16384 → 4096 → 1024 → 256 → 64 → 16 → 4

11) 2097152 → 524288 → 131072 → 32768 → 8192 → 2048 → 512 → 128 → 32 → 8 → 2 → 1 → 4

1048576

Figure 12



Drawing not to scale

Part D Find the perimeter and area of Figure 12. On the lines below, write your answers.

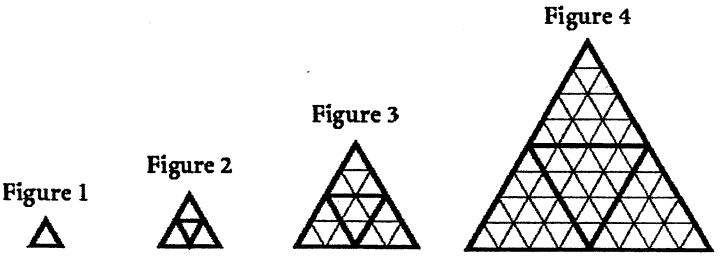
Perimeter 6144 Area 1048576 $\sqrt{3}$

Part E On the lines below, explain how you found the area of Figure 12.

I just kept multiplying by 4.

4/12

40 Each figure in the pattern below is made from equilateral triangles with sides that are 1 unit in length.



Part A Complete the table below to show the perimeter and area of each figure.

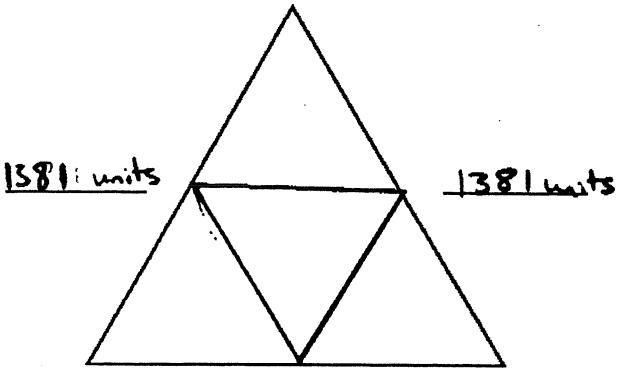
Figure	Perimeter	Area
1	3	$\frac{1}{4}\sqrt{3}$
2	6	$\sqrt{3}$
3	12	$4\sqrt{3}$
4	24	$16\sqrt{3}$
5	48	$64\sqrt{3}$
6	96	$256\sqrt{3}$
7	192	$1034\sqrt{3}$

Part B On the lines below, describe the pattern of change in the perimeters of the figures.

The pattern of change in perimeters of the figures is 2. For example, figure 3's perimeter is 12, for Figure 4's perimeter is 12×2=24. This is the way for all perimeters for these triangles.

Part C The outline of Figure 12 is shown below. Label the lengths of each side on the lines provided.

Figure 12



Drawing not to scale

Part D Find the perimeter and area of Figure 12. On the lines below, write your answers.

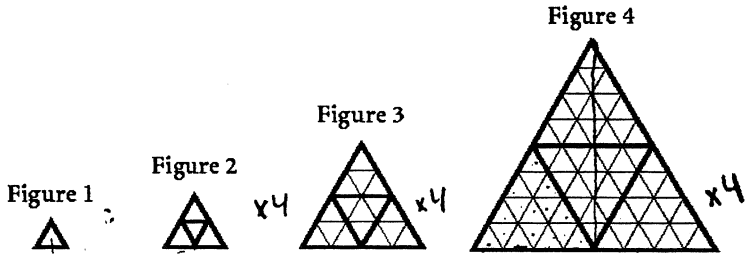
Perimeter 4144 Area 1058816

Part E On the lines below, explain how you found the area of Figure 12.

I found the area for by using the same pattern as I used before by multiplying the area of the figure before by 4.

4/12

40 Each figure in the pattern below is made from equilateral triangles with sides that are 1 unit in length.



Part A Complete the table below to show the perimeter and area of each figure.

Figure	Perimeter	Area
1	3	$\frac{1}{4}\sqrt{3}$
2	6	$\sqrt{3}$
3	12	$4\sqrt{3}$
4	24	24
5	48	48
6	96	96
7	192	192

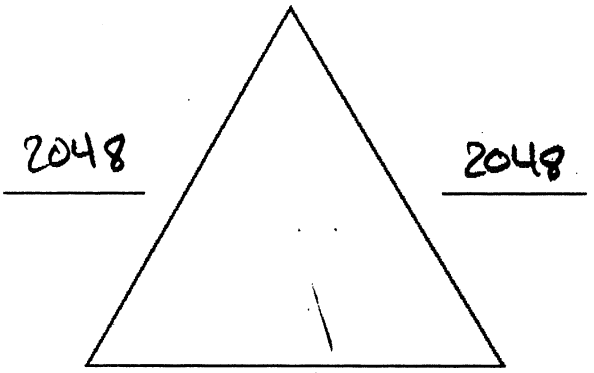
Part B On the lines below, describe the pattern of change in the perimeters of the figures.

The perimeters of the figures are multiplied by 2 to get the next figures perimeter.

4/12

Part C The outline of Figure 12 is shown below. Label the lengths of each side on the lines provided.

Figure 12



Drawing not to scale

Part D Find the perimeter and area of Figure 12. On the lines below, write your answers.

Perimeter 6144

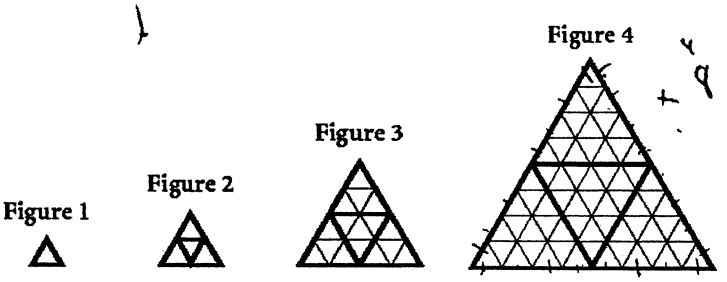
Area ? 1024x2048

Part E On the lines below, explain how you found the area of Figure 12.

I didn't ½ b x h, 1024 x 2048

41.

40 Each figure in the pattern below is made from equilateral triangles with sides that are 1 unit in length.



Part A Complete the table below to show the perimeter and area of each figure.

Figure	Perimeter	Area
1	3	$\frac{1}{4}\sqrt{3}$
2	6	$\sqrt{3}$
3	12	$4\sqrt{3}$
4	24	$4\sqrt{3}$
5	48	$8\sqrt{3}$
6	96	$10\sqrt{3}$
7	192	$12\sqrt{3}$

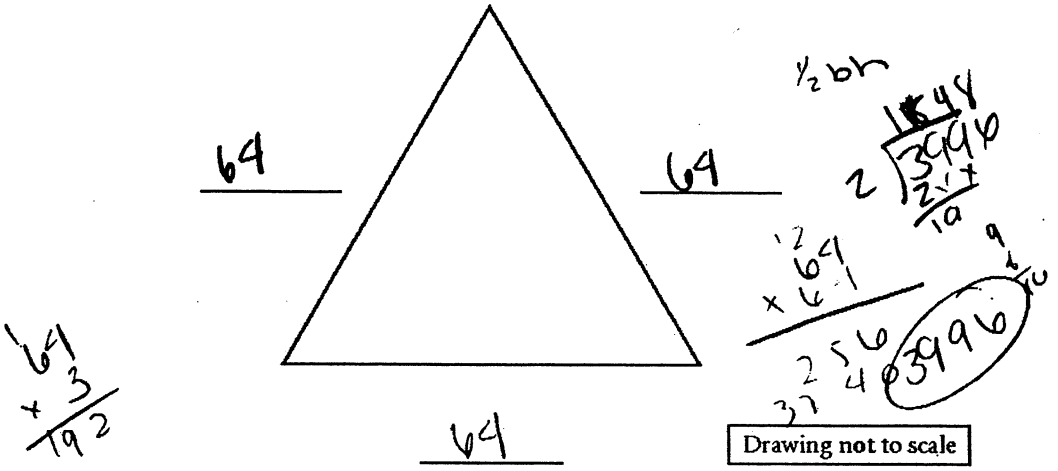
Part B On the lines below, describe the pattern of change in the perimeters of the figures.

The perimeter of the triangle always doubled.

KH 4/12

Part C The outline of Figure 12 is shown below. Label the lengths of each side on the lines provided.

Figure 12



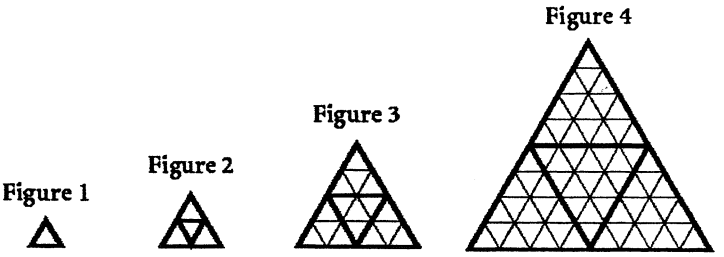
Part D Find the perimeter and area of Figure 12. On the lines below, write your answers.

Perimeter 192 Area 1896

Part E On the lines below, explain how you found the area of Figure 12.

I multiplied the base and the heighth then divided it by 2.

40 Each figure in the pattern below is made from equilateral triangles with sides that are 1 unit in length.



Part A Complete the table below to show the perimeter and area of each figure.

Figure	Perimeter	Area
1	3	$\frac{1}{4}\sqrt{3}$
2	6	$\sqrt{3}$
3	12	$4\sqrt{3}$
4	15	$\sqrt{4}$
5	18	$5\sqrt{4}$
6	21	$\sqrt{5}$
7	24	$6\sqrt{5}$

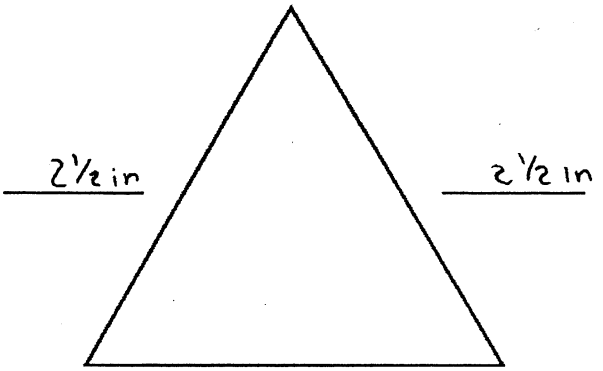
Part B On the lines below, describe the pattern of change in the perimeters of the figures.

the perimeter and the area both go up 3 times of what they were.

4/17

Part C The outline of Figure 12 is shown below. Label the lengths of each side on the lines provided.

Figure 12



Drawing not to scale

Part D Find the perimeter and area of Figure 12. On the lines below, write your answers.

Perimeter 13 in Area 6½ in

Part E On the lines below, explain how you found the area of Figure 12.

you do length times the with
So you go 3 × 2½ so it's 6½ in

KH 4/r