2012-13 ATI-CAS Comprehensive Math Algebra

Comprehensive Benchmark Assessment Series

Instructions: It is time to begin. The scores of this test will help teachers plan lessons. Carefully, read each item in the test booklet. Select the best answer: A, B, C, or D. Use a pencil. Mark your answer on the ANSWER SHEET. Fill in the bubble next to your answer choice. Make sure the bubble is completely colored. Erase any extra pencil lines or changed answers. You may write on the test booklet unless your teacher gave you scratch paper. Review and check your answers after you have finished the test.

CO-HS.PFA.1a.i Explain that a function is a correspondence from one set (called the domain) to another set (called the range) that assigns to each element of the domain exactly one element of the range. (CCSS: F-IF.1)

1) Does the table represent y as a function of x?

x	-4	-2	0	1	2	3
y	-11	-5	1	4	7	10

A) Yes, because for every y-value there is only one x-value.

✔ B) Yes, because for every x-value there is only one y-value.

C) No, because there is more than one x-value for the same y-value.

D) No, because there is more than one y-value for the same x-value .

CO-HS.PFA.1a.ii Use function notation, evaluate functions for inputs in their domains, and interpret statements that use function notation in terms of a context. (CCSS: F-IF.2)

2) If $g(x) = 3|x - 2| - x$, what is $g(0.5)$?

A) -5

B) -2

C) 1

✔ D) 4

CO-HS.PFA.1a.iii Demonstrate that sequences are functions, sometimes defined recursively, whose domain is a subset of the integers. (CCSS: F-IF.3)

3) For the function below, which set produces the sequence -11, 0, 5?

$k(n) = 8n - 3n^2$

✔ A) $k(-1), k(0), k(1)$

B) $k(1), k(2), k(3)$

C) $k(-3), k(-2), k(-1)$

D) $k(-11), k(0), k(5)$

CO-HS.PFA.1a.iii Demonstrate that sequences are functions, sometimes defined recursively, whose domain is a subset of the integers. (CCSS: F-IF.3)

4) For the function below, which set produces the sequence -30, -34, -38?

$f(n) = 6 - 4n$

A) $f(-30), f(-34), f(-38)$

B) $f(-9), f(-10), f(-11)$

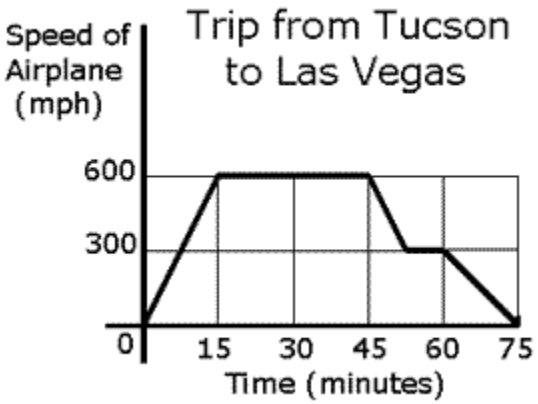
C) $f(6), f(7), f(8)$

✔ D) $f(9), f(10), f(11)$

CO-HS.PFA.1b.i For a function that models a relationship between two quantities, interpret key features of graphs and tables in terms of the quantities, and sketch graphs showing key features given a verbal description of the relationship. * (CCSS: F-IF.4)

5) The graph shows the speed of an airplane during a trip from Tucson to Las Vegas.

Which situation is best represented by the graph?



A) An airplane took off and increased speed steadily for 15 minutes. For 30 minutes, the plane flew at 600 mph. The airplane then steadily decreased speed until it landed 20 minutes later.

✔ B) An airplane took off and increased speed steadily for 15 minutes. For 30 minutes, the plane flew at 600 mph. The airplane began to slow down steadily until its speed was 300 mph. The airplane circled the airport for about 7 minutes, and then slowed down steadily until it landed 15 minutes later.

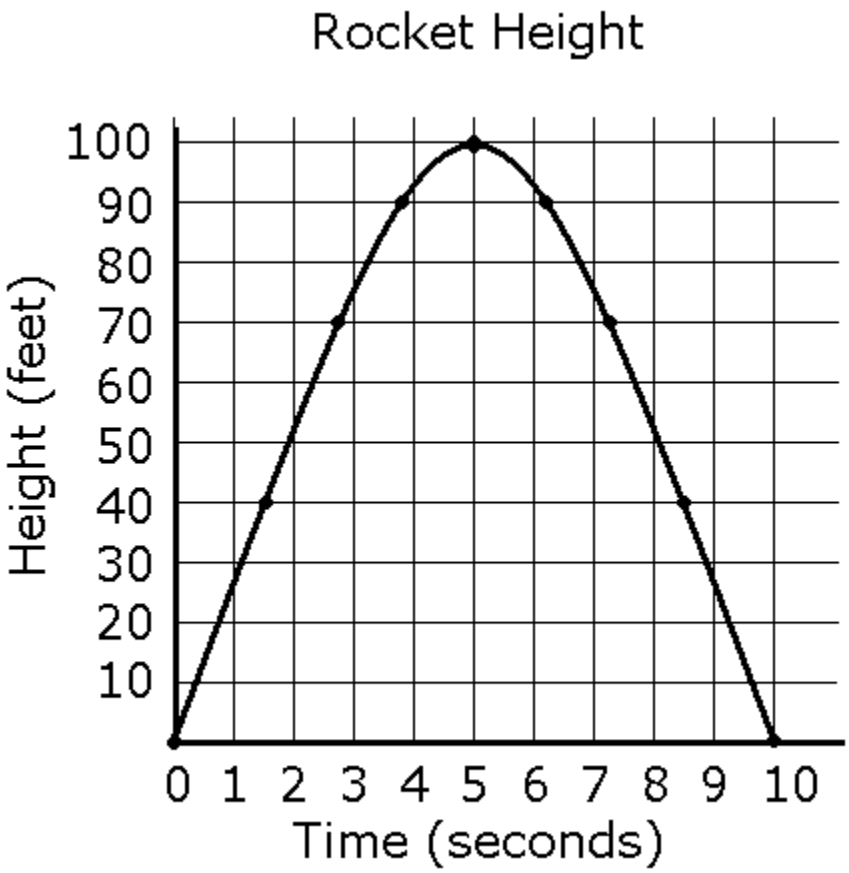
C) An airplane took off and increased speed steadily for 15 minutes. For 30 minutes, the plane flew at 600 mph. The airplane began to slow down steadily until the speed was 100 mph. The airplane circled the airport for about 10 minutes, and then slowed down steadily until it landed 15 minutes later.

D) An airplane took off and increased speed steadily for 15 minutes. For 45 minutes, the plane flew at 600 mph. The airplane began to slow down steadily until the speed was 300 mph. The airplane circled the airport for about 7 minutes, and then slowed down steadily until it landed 75 minutes later.

CO-HS.PFA.1b.i For a function that models a relationship between two quantities, interpret key features of graphs and tables in terms of the quantities, and sketch graphs showing key features given a verbal description of the relationship. * (CCSS: F-IF.4)

6) The graph shows the height of a rocket over ten seconds.

Which situation is best represented by the graph?



A) Three seconds after take-off, the rocket was at a height of 70 feet. At 5 seconds, the rocket reached its greatest height of 110 feet. Ten seconds after take-off, it hit the ground.

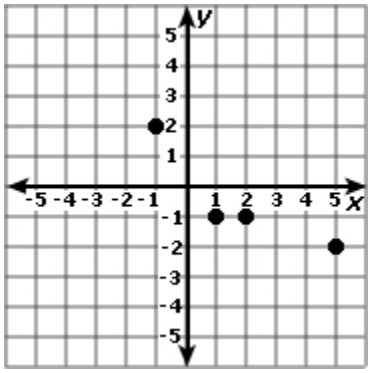
✔ B) Three seconds after take-off, the rocket was at a height of 75 feet. At 5 seconds, the rocket reached its greatest height of 100 feet. Ten seconds after take-off, it hit the ground.

C) Two seconds after take-off, the rocket was at a height of 75 feet. At 5 seconds, the rocket reached its greatest height of 100 feet. Five seconds after take-off, it hit the ground.

D) One second after take-off, the rocket was at a height of 50 feet. At 5 seconds, the rocket reached its greatest height of 100 feet. Five seconds after take-off, it hit the ground.

CO-HS.PFA.1b.ii Relate the domain of a function to its graph and, where applicable, to the quantitative relationship it describes. * (CCSS: F-IF.5)

7) What is the domain and range of the function shown on the graph below?



A) Domain = {0, 1, 2}; Range = {-2, -1, 2, 5}

✔ B) Domain = {-1, 1, 2, 5}; Range = {-2, -1, 2}

C) Domain = {-1, 0, 2, 4}; Range = {-5, -2, -1}

D) Domain = {-1, 0, 2, 4, 5, 6}; Range = {-5, -2, -1, 1, 2, 5}

CO-HS.PFA.1b.iii Calculate and interpret the average rate of change of a function over a specified interval. Estimate the rate of change from a graph. * (CCSS: F-IF.6)

8) Which of the following best describes the relationship between the math class grade and number of days absent represented by the table?

Days Absent	0	3	6	9	12	15
Math Grade	95%	88%	81%	74%	67%	60%

A) The math class grade is not affected by the number of days absent.

B) The math class grade decreases steadily as the number of days absent decreases.

C) The math class grade increases steadily as the number of days absent increases.

✔ D) The math class grade decreases steadily as the number of days absent increases.

CO-HS.PFA.1c.i Graph functions expressed symbolically and show key features of the graph, by hand in simple cases and using technology for more complicated cases. * (CCSS: F-IF.7)

9) Which is the graph of a linear function with a slope of 2 and a *y*-intercept at (0, 1)?

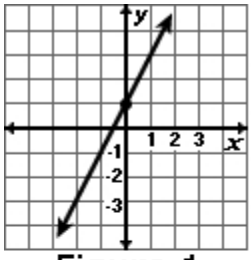


Figure 1

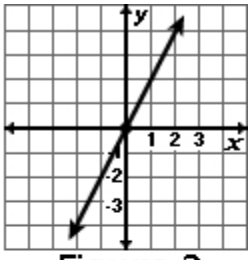


Figure 2

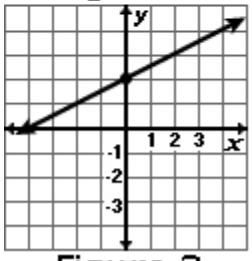


Figure 3

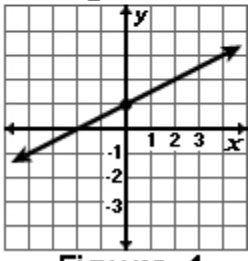


Figure 4

✔ A) Figure 1

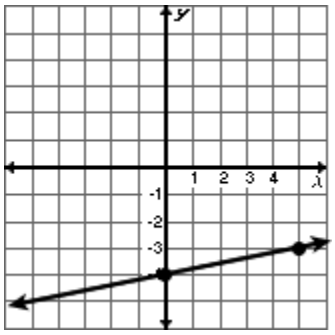
B) Figure 2

C) Figure 3

D) Figure 4

CO-HS.PFA.1c.ii Graph linear and quadratic functions and show intercepts, maxima, and minima. (CCSS: F-IF.7a)

10) Which of the following equations is graphed below?



A) $y = -\frac{1}{5}x - 4$

B) $y = 5x - 3$

C) $y = 5x - 4$

✔ D) $y = \frac{1}{5}x - 4$

CO-HS.PFA.1c.vi Write a function defined by an expression in different but equivalent forms to reveal and explain different properties of the function. (CCSS: F-IF.8)

11) The intercept form of a linear equation is shown below. It allows for a quick identification of the equation's intercepts. What is the intercept form of $y = 2x + 4$?

$$\frac{x}{a} + \frac{y}{b} = 1$$

A) $-\frac{x}{4} + \frac{y}{2} = 1$

✔ B) $-\frac{x}{2} + \frac{y}{4} = 1$

C) $\frac{x}{2} - \frac{y}{4} = 1$

D) $\frac{x}{4} - \frac{y}{2} = 1$

CO-HS.PFA.1c.vi.3 Compare properties of two functions each represented in a different way (algebraically, graphically, numerically in tables, or by verbal descriptions). (CCSS: F-IF.9)

12) The "4" in the linear function, y = 4x - 5, is changed to (-4). How will the new graph compare to the graph of the given function?

A) The new graph will be perpendicular to the graph of the given function.

✔ B) The new graph will intersect, but will not be perpendicular to the graph of the given function.

C) The new graph will be parallel to the graph of the given function.

D) The new graph will be parallel to the graph of the given function but will have a different y-intercept.

CO-HS.PFA.1d.i Write a function that describes a relationship between two quantities. * (CCSS: F-BF.1)

13) Every day commuting to and from work, Jay drives his car a total of 45 miles. His car already has 2,700 miles on it.

Which function shows the total number of miles Jay's car will have been driven after *n* more days?

A) $d(n) = 60$

B) $d(n) = 60n$

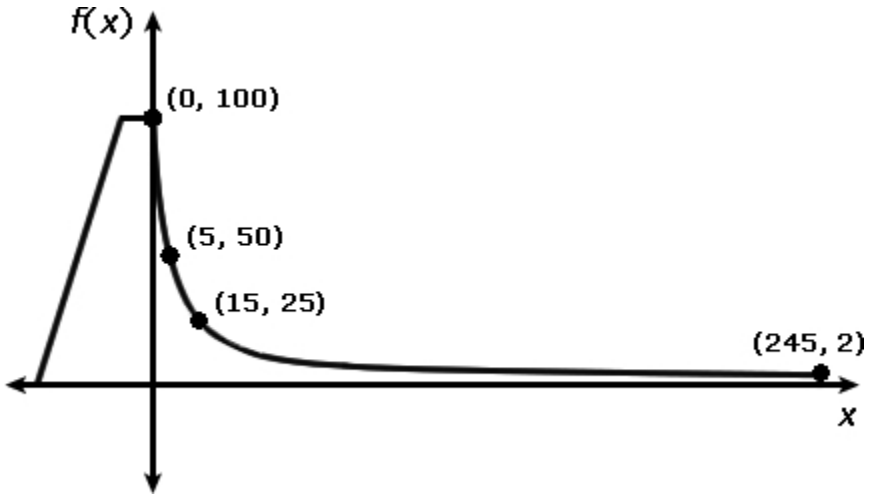
C) $d(n) = 45 + 2{,}700n$

✔ D) $d(n) = 2{,}700 + 45n$

CO-HS.PFA.1d.i.1 Determine an explicit expression, a recursive process, or steps for calculation from a context. (CCSS: F-BF.1a)

14) At the top of the water slide, Jessica sits 100 feet above the ground. She begins her descent and quickly drops to a height of 50 feet while moving only 5 feet forward. She drops to a height of 25 feet upon travelling 15 feet forward, eventually coming to rest 2 feet above the ground at the end of the 245-foot-long slide.

Which function models Jessica's entire descent down the water slide?



A) $f(x) = 100 - 10x$

✔ B) $f(x) = \frac{500}{x + 5}$

C) $f(x) = \frac{2}{5}x^2 - 12x + 100$

D) $f(x) = \frac{265 - x}{10}$

CO-HS.PFA.1d.ii Write arithmetic and geometric sequences both recursively and with an explicit formula, use them to model situations, and translate between the two forms. * (CCSS: F-BF.2)

15) What are the second, third, and fourth terms of the sequence defined by the formula below?

$a_n = a_{n-1} + 5$

$a_1 = -8$

A) -8, -3, 2

✔ B) -3, 2, 7

C) 6, 7, 8

D) 7, 8, 9

CO-HS.PFA.1d.ii Write arithmetic and geometric sequences both recursively and with an explicit formula, use them to model situations, and translate between the two forms. * (CCSS: F-BF.2)

16) What is the recursive form of the following formula of a sequence?

$a_n = 2 + 3(n - 1)$

A) $a_1 = 1, a_n = 3a_{n-1} + 2$

B) $a_1 = 1, a_n = 2a_{n-1} + 3$

✔ C) $a_1 = 2, a_n = a_{n-1} + 3$

D) $a_1 = 2, a_n = 3a_{n-1}$

CO-HS.PFA.2a.i Distinguish between situations that can be modeled with linear functions and with exponential functions. (CCSS: F-LE.1)

17) Christy and Derron set goals for improving their recorded times for the mile. Which statement best describes these goals?

Christy: Complete each new run in 5 fewer seconds than the previously recorded run.

Derron: Complete each new run in 5% less time than the previously recorded run.

A) Christy's goal can be modeled with an exponential function, while Derron's goal can be modeled with a linear function.

✔ B) Christy's goal can be modeled with a linear function, while Derron's goal can be modeled with an exponential function.

C) Both goals can be modeled with exponential functions.

D) Both goals can be modeled with linear functions.

CO-HS.PFA.2a.i.1 Prove that linear functions grow by equal differences over equal intervals, and that exponential functions grow by equal factors over equal intervals. (CCSS: F-LE.1a)

18) Given that $y = ax + b$, $x_0 = -2$, and $x_1 = 3$, what is the difference between the value of y corresponding to x_1 and the value of y corresponding to x_0?

A) $-5a$

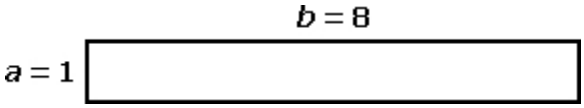
B) $-a$

C) a

✔ D) $5a$

CO-HS.PFA.2a.i.2 Identify situations in which one quantity changes at a constant rate per unit interval relative to another. (CCSS: F-LE.1b)

19) The dimensions of the rectangle change. At each step, new values are calculated based on the previous values. Which rule changes the perimeter at a constant rate?



A) $a_{new} = 2a_p$; $b_{new} = b_p \div 2$

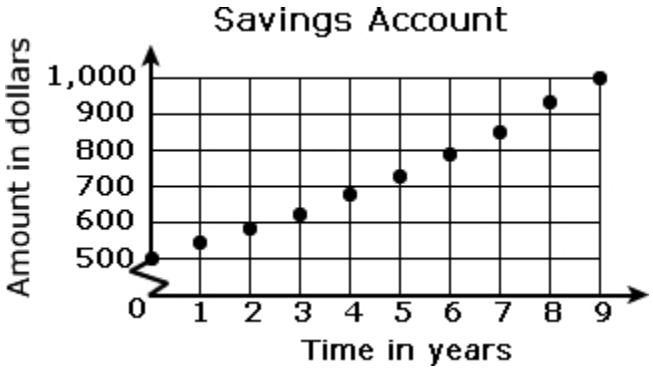
B) $a_{new} = 2a_p$; $b_{new} = 2b_p$

C) $a_{new} = a_p + 1$; $b_{new} = 2b_p$

✔ D) $a_{new} = a_p + 1$; $b_{new} = b_p + 2$

CO-HS.PFA.2a.i.3 Identify situations in which a quantity grows or decays by a constant percent rate per unit interval relative to another. (CCSS: F-LE.1c)

20) Which situation best describes the graph?



A) 8% per year increase in value of a $1,000 deposit over 9 years.

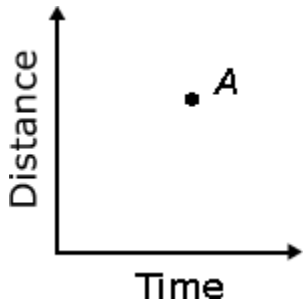
✔ B) 8% per year increase in value of a $500 deposit over 9 years.

C) 8% per year decrease in value of a $1,000 deposit over 9 years.

D) 8% per year decrease in value of a $500 deposit over 9 years.

CO-HS.PFA.2b.i Interpret the parameters in a linear or exponential function in terms of a context. (CCSS: F-LE.5)

21) Point *A* on the graph represents the distance and time that Cat traveled on her trip. Which of the following represents her average speed?



A) *x*-coordinate of point *A*

B) *y*-coordinate of point *A*

✔ C) slope of line through *A* and (0, 0)

D) distance from the origin to point *A*

CO-HS.PFA.2b.i Interpret the parameters in a linear or exponential function in terms of a context. (CCSS: F-LE.5)

22) The development budget (C) for a computer game company is described by the equation $C = \$50{,}000t + \$10{,}000$, where t is the number of years since the company's creation. Which statement is true?

✔ A) Each year development expenses increase by $50,000.

B) Each year development expenses increase by $60,000.

C) Each year development expenses are $50,000.

D) Each year development expenses are $60,000.

CO-HS.PFA.2b.i Interpret the parameters in a linear or exponential function in terms of a context. (CCSS: F-LE.5)

23) Roy opened a savings account and made a deposit. Assuming he makes no deductions or additional deposits, his balance can be calculated using the function $f(t) = 850(1.065)^t$, where t represents the number of years since the initial deposit.

What does the number 850 represent?

✔ A) the amount of Roy's initial deposit

B) the amount of interest Roy will earn each year

C) the number of years it will take for Roy's money to double

D) the maximum amount of interest Roy can earn with the account

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CO-HS.PFA.2b.i Interpret the parameters in a linear or exponential function in terms of a context. (CCSS: F-LE.5)

24) Population growth of a country is modeled by the function below, where t is time in years. Based on the model, which is true about the country?

$$P = 10^7 \cdot 1.04^t$$

A) Since reaching 10 million people, the population was growing by 0.04% each year.

✔ B) Since reaching 10 million people, the population was growing by 4% each year.

C) Since reaching 100 million people, the population was growing by 0.04% each year.

D) Since reaching 100 million people, the population was growing by 4% each year.

CO-HS.PFA.3a.i Interpret expressions that represent a quantity in terms of its context. * (CCSS: A-SSE.1)

25) If *d* represents a distance, and *r* represents the radius of a bicycle wheel, what might the expression below represent?

$$\frac{d}{2\pi r}$$

A) the distance the wheel will have traveled after two rotations

B) the linear speed of the wheel when rotating two times per second

✔ C) the number of rotations the wheel will have completed after traveling the given distance

D) the fraction of the given distance the wheel will have traveled after completing one rotation

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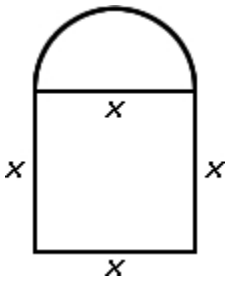
CO-HS.PFA.3a.i Interpret expressions that represent a quantity in terms of its context. * (CCSS: A-SSE.1)

26) Which of the following is an algebraic expression of the area of the figure below?



✔ A) $x^2 + \frac{\pi x^2}{8}$

B) $4x + \frac{\pi x^2}{8}$

C) $3x + \frac{\pi x^2}{2}$

D) $x^2 + \pi x$

CO-HS.PFA.3a.ii Use the structure of an expression to identify ways to rewrite it. (CCSS: A-SSE.2)

27) Which expression correctly factors the polynomial?

$16x^2 - 25$

A) $(4x-5)^2$

B) $(4x+5)^2$

✔ C) $(4x+5)(4x-5)$

D) $2(x^2-5)^2$

CO-HS.PFA.3a.ii Use the structure of an expression to identify ways to rewrite it. (CCSS: A-SSE.2)

28) What values for p, q, and r will make the following equation true?

$px^2 + qx + r = (x+5)(x+2)$

A) $p = 1, q = 3, r = 10$

✔ B) $p = 1, q = 7, r = 10$

C) $p = 2, q = 3, r = 7$

D) $p = 2, q = 7, r = 7$

CO-HS.PFA.3b.i Choose and produce an equivalent form of an expression to reveal and explain properties of the quantity represented by the expression. * (CCSS: A-SSE.3)

29) A triangle with a base length that is three times the height of the triangle has an area of $6a^2b^2$. Which is an equivalent expression that shows the dimensions of the triangle?

A) $\frac{1}{2} \cdot \underset{\text{base}}{3} \cdot \underset{\text{height}}{(4ab)^2}$

✔ B) $\frac{1}{2} \cdot \underset{\text{base}}{6ab} \cdot \underset{\text{height}}{2ab}$

C) $\frac{1}{2} \cdot \underset{\text{base}}{12ab} \cdot \underset{\text{height}}{ab}$

D) $\frac{1}{2} \cdot \underset{\text{base}}{6(a - b)} \cdot \underset{\text{height}}{2(a + b)}$

CO-HS.PFA.3b.i.1 Factor a quadratic expression to reveal the zeros of the function it defines. (CCSS: A-SSE.3a)

30) What is the factored form of the following expression?

$x^2 - 10x + 24$

A) $(x-4)(x+6)$

✔ B) $(x-4)(x-6)$

C) $(x+2)(x-12)$

D) $(x-2)(x+12)$

CO-HS.PFA.3b.i.1 Factor a quadratic expression to reveal the zeros of the function it defines. (CCSS: A-SSE.3a)

31) What is the factored form of the following expression?

$-6x^2 + 34x - 20$

A) $-(2x - 5)(3x - 4)$

B) $-(2x - 4)(3x - 5)$

✔ C) $-2(x - 5)(3x - 2)$

D) $-2(x - 2)(3x - 5)$

CO-HS.PFA.3b.i.2 Complete the square in a quadratic expression to reveal the maximum or minimum value of the function it defines. (CCSS: A-SSE.3b)

32) Using the steps below, Cynthia correctly completed the square in the quadratic expression $x^2 - 8x + 17$ in order to reveal its minimum value. What are the missing numbers that she used for Step 1?

$x^2 - 8x + 17$

Step 1: $x^2 - 8x + \square + \square + 17$

Step 2: $(x - 4)^2 - 16 + 17$

Step 3: $(x - 4)^2 + 1$

The minimum value is 1.

✔ A) 16 and -16

B) 8 and -8

C) 16 and 1

D) 8 and 1

CO-HS.PFA.4a.i Create equations and inequalities in one variable and use them to solve problems. (CCSS: A-CED.1)

33) A 150-inch-long ribbon is cut into 3 pieces. The 1st piece is twice as long as the 2nd piece. The 3rd piece is three times as long as the 2nd piece. What is the length of the largest piece of ribbon?

A) 25 inches

B) 50 inches

✔ C) 75 inches

D) 100 inches

CO-HS.PFA.4a.ii Create equations in two or more variables to represent relationships between quantities and graph equations on coordinate axes with labels and scales. (CCSS: A-CED.2)

34) What is the equation of the line that has a slope of 0 and passes through the point (4, -2)?

✔ A) $y = -2$

B) $x = 4$

C) $y = -2x + 4$

D) $y = 4x - 2$

CO-HS.PFA.4a.iv Rearrange formulas to highlight a quantity of interest, using the same reasoning as in solving equations. (CCSS: A-CED.4)

35) The following is a formula that gives the relationship between degrees Fahrenheit (*F*) and degrees Celsius (*C*). Which equation shows the formula correctly solved for Fahrenheit degrees?

$$C = \frac{5}{9}(F - 32)$$

✔ A) $F = \frac{9}{5}C + 32$

B) $F = \frac{9}{5}C - 32$

C) $F = \frac{9}{5}(C + 32)$

D) $F = \frac{5}{9}C + 32$

CO-HS.PFA.4a.iv Rearrange formulas to highlight a quantity of interest, using the same reasoning as in solving equations. (CCSS: A-CED.4)

36) Solve the following formula for *r*.

$i = prt$

A) $r = pt - i$

B) $r = i - pt$

C) $r = \frac{pt}{i}$

✔ D) $r = \frac{i}{pt}$

CO-HS.PFA.4c.i Solve linear equations and inequalities in one variable, including equations with coefficients represented by letters. (CCSS: A-REI.3)

37) What is the solution to the following inequality?

$-2 < \frac{1}{3}x - 2 < 6$

A) $-12 < x < 24$

B) $-\frac{4}{3} < x < \frac{4}{3}$

C) $0 < x < \frac{8}{3}$

✔ D) $0 < x < 24$

CO-HS.PFA.4c.ii Solve quadratic equations in one variable. (CCSS: A-REI.4)

38) What are the solutions of this equation?

$x^2 = 3x - 1$

A) $\frac{-3 \pm \sqrt{13}}{2}$

B) $\frac{-3 \pm \sqrt{5}}{2}$

C) $\frac{3 \pm \sqrt{13}}{2}$

✔ D) $\frac{3 \pm \sqrt{5}}{2}$

CO-HS.PFA.4c.ii.1 Use the method of completing the square to transform any quadratic equation in x into an equation of the form (x – p)2 = q that has the same solutions. Derive the quadratic formula from this form. (CCSS: A-REI.4a)

39) Four steps to derive the quadratic formula are shown below. What is the correct order for these steps?

I $x+\frac{b}{2a}=\pm\sqrt{\frac{b^2-4ac}{4a^2}}$

II $\left(x+\frac{b}{2a}\right)^2=-\frac{c}{a}+\left(\frac{b}{2a}\right)^2$

III $x=-\frac{b}{2a}\pm\frac{\sqrt{b^2-4ac}}{2a}$

IV $x^2+\frac{b}{a}x+\frac{c}{a}=0$

A) II, IV, I, III

B) III, I, II, IV

✔ C) IV, II, I, III

D) IV, II, III, I

CO-HS.PFA.4c.ii.2 Solve quadratic equations by inspection, taking square roots, completing the square, the quadratic formula and factoring, as appropriate to the initial form of the equation. (CCSS: A-REI.4b)

40) What are the solutions of the quadratic equation below?

$$4x^2 - 80 = 0$$

A) $x = 20,\ x = -20$

✔ B) $x = 2\sqrt{5},\ x = -2\sqrt{5}$

C) $x = 5\sqrt{2},\ x = -5\sqrt{2}$

D) $x = 10,\ x = -10$

CO-HS.PFA.4d.i Prove that, given a system of two equations in two variables, replacing one equation by the sum of that equation and a multiple of the other produces a system with the same solutions. (CCSS: A-REI.5)

41) Given (1) and (2), which of the following is not necessarily true?

(1) ▨ = □

(2) ◬ = △

A) ▨ + ◬ + ◬ = □ + △ + △

B) ▨ + △ + △ = □ + ◬ + ◬

C) ▨ + ◬ + △ = □ + △ + ◬

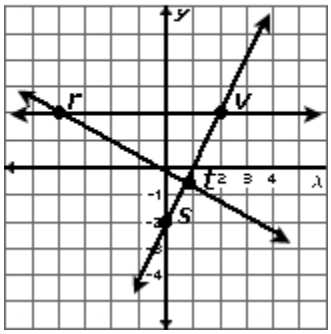
✔ D) All three are true.

CO-HS.PFA.4d.ii Solve systems of linear equations exactly and approximately, focusing on pairs of linear equations in two variables. (CCSS: A-REI.6)

42) Solve the system of equations.

Which point on the graph is the solution to the system of linear equations?

$-2x = -y - 2$
$y = 2$



A) r

B) s

C) t

✔ D) v

CO-HS.PFA.4d.iii Solve a simple system consisting of a linear equation and a quadratic equation in two variables algebraically and graphically. (CCSS: A-REI.7)

43) At which point(s) do the graphs of the following equations intersect?

$y = x^2$
$y = 4x - 4$

A) (-2, 4)

✔ B) (2, 4)

C) (-2, 4) and (2, 4)

D) (-2, -4) and (-2, 4)

CO-HS.PFA.4d.iii Solve a simple system consisting of a linear equation and a quadratic equation in two variables algebraically and graphically. (CCSS: A-REI.7)

44) What are the x-coordinates of the points of intersection of the graphs corresponding to the following equations?

$x^2 + y^2 = 25$

$y = x - 1$

A) -4 and 3

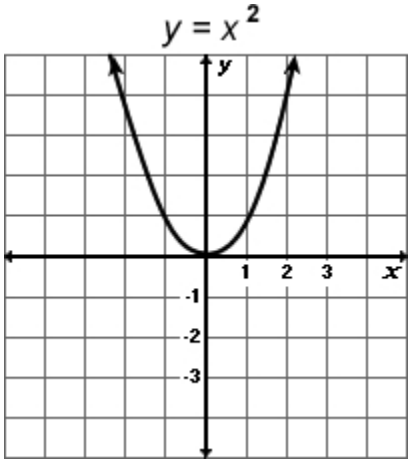
✔ B) -3 and 4

C) $\frac{-1 \pm \sqrt{53}}{2}$

D) $\frac{1 \pm \sqrt{53}}{2}$

CO-HS.PFA.4e.i Explain that the graph of an equation in two variables is the set of all its solutions plotted in the coordinate plane, often forming a curve. (CCSS: A-REI.10)

45) Does the graph represent the equation?



✔ A) Yes, it is the graph of the equation.

B) No, the graph should open downward.

C) No, the graph should be a line.

D) No, the graph should open to the right.

CO-HS.PFA.4e.ii Explain why the x-coordinates of the points where the graphs of the equations y = f(x) and y = g(x) intersect are the solutions of the equation f(x) = g(x); find the solutions approximately. (CCSS: A-REI.11)

46) The functions *g* and *h* are defined below. At which *x*-value do the graphs of *g* and *h* intersect?

$g(x) = 2x + 5$

$h(x) = -5x - 9$

A) 2

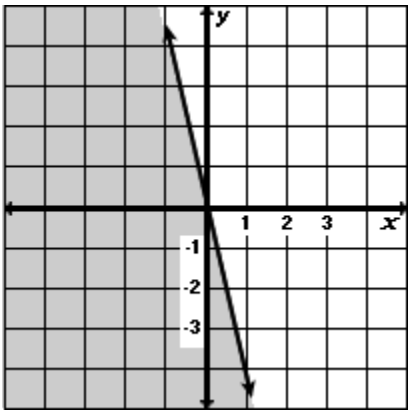
B) $\frac{4}{3}$

✔ C) -2

D) $-\frac{4}{3}$

CO-HS.PFA.4e.iii Graph the solutions to a linear inequality in two variables as a half-plane (excluding the boundary in the case of a strict inequality), and graph the solution set to a system of linear inequalities in two variables as the intersection of the corresponding half-planes. (CCSS: A-REI.12)

47) Which inequality is shown on the graph below?



A) $y \leq -\frac{1}{4}x$

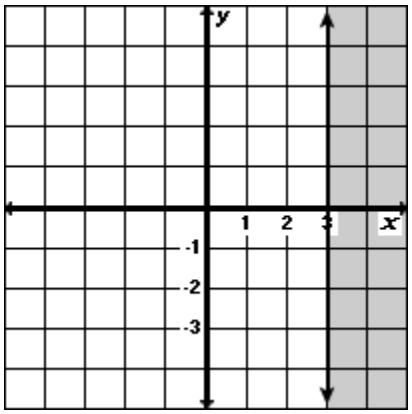
B) $y < -\frac{1}{4}x$

C) $y < -4x$

✔ D) $y \leq -4x$

CO-HS.PFA.4e.iii Graph the solutions to a linear inequality in two variables as a half-plane (excluding the boundary in the case of a strict inequality), and graph the solution set to a system of linear inequalities in two variables as the intersection of the corresponding half-planes. (CCSS: A-REI.12)

48) Which inequality is shown on the graph below?



A) $x > 3$

✔ B) $x \geq 3$

C) $y > 3$

D) $x + y = 3$

CO-HS.NPO.1a.ii Rewrite expressions involving radicals and rational exponents using the properties of exponents. (CCSS: N-RN.2)

49) The expression below has been simplified incorrectly.

Complete the following.

a. Describe the error made in the simplification.

b. What is the correct simplification of the expression?

$$\frac{8x^5}{2x^{-3}} = 4x^2$$

CO-HS.NPO.1a.ii Rewrite expressions involving radicals and rational exponents using the properties of exponents. (CCSS: N-RN.2)

50) What is the simplified form of the following expression?

$$\frac{10x^3}{5x^{-2}}$$

2012-13 ATI-CAS Comprehensive Math Algebra

Instructions for Student-Read Offline Assessments

Teacher Instructions:

This test packet includes:

1) test booklets

2) student answer sheets containing student and test identification information

As soon as you receive your test materials, confirm that you have enough testing materials for each student in your class.

You may provide students with scratch paper or students may write in the test booklet.

Allow a few minutes at the beginning of the testing period to review the assessment instructions with students. Students should work through the test items in the test booklet, marking their responses on the answer sheet provided to them. You may answer student questions about the test instructions. Do not answer questions related to the content of the test itself. This includes translating, rephrasing, or adding information to the test question, answers, or related content.

Once the assessment period is over, collect the students' test booklets and answer sheets. Provide to assigned district staff the answer sheets for scanning and the test booklets for proper disposal.