Algebra 1 Final Exam Review

1 Which of the following equations represents a line that is perpendicular to $y = \frac{2}{3}x - 7$?

A $y = \frac{3}{2}x - 4$

B $y = -\frac{3}{2}x - 5$

C $y = \frac{3}{2}x + 7$

D $y = -\frac{2}{3}x - 5$

2 Simplify: $\frac{x^6 y^6}{x^2 y}$

3 Simplify: $(2x^6 y^0)^4$

4 Simplify: $\frac{\left(4a^2 b^{-2}\right)^{-2}}{a^2 b^{-1}}$

5 Simplify: $x^6 \bullet x^{-3}$

6 Multiply $(r-9)(r+5)$

7 Multiply $(6c+6)(6c-6)$

8 Factor $r^2 - 36$

9 Factor $d^2 + 6d + 9$

10 $\frac{x^2 + 8x + 16}{x+3} \div \frac{4x+16}{x^2 - 9} =$

11 Factor $d^2 + 18d + 81$

12 Which is a factor of $x^2 - 16x + 64$

13 What quantity should be added to both sides of this equation to complete the square?

$x^2 - 14x = 5$

14 What are the solutions to the quadratic equation $x^2 + 4x = 12$?

15 Which is one of the solutions to the equation

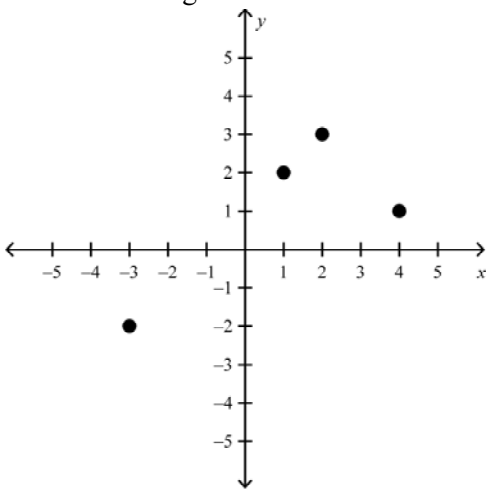
$2x^2 - x - 6 = 0$

16 $(4x^2 - 7x + 8) - (x^2 + 9x - 2)$

17 Francesca can paint 10 dolls in 20 minutes, while Eriberto can paint 10 dolls in 50 minutes. How long would it take Francesca and Eriberto to paint the 10 dolls working together?

18 Sam can frame a house in 5 hours, while Sally can frame the same house in 10 hours. How long would it take Sam and Sally to frame a house working together?

19 What is the range of the function below?



20 Which relation is a function?

A $\{(1,2),(2,3),(3,4),(5,6)\}$

B $\{(1,2),(1,3),(2,5),(3,7)\}$

C $\{(-1,2),(-1,-1),(-1,3),(-1,3)\}$

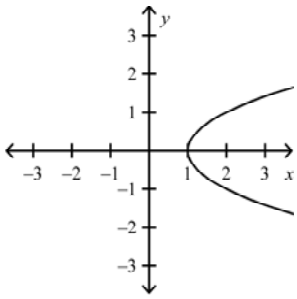
D $\{(0,1),(1,0),(2,1),(2,2)\}$

21 Simplify the expression

$$\frac{7}{3x}+\frac{3}{5x}$$

22 Which graph is a function?

A



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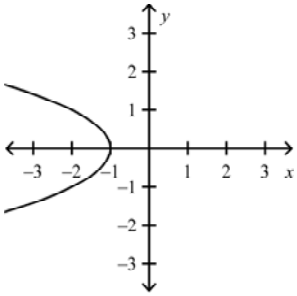

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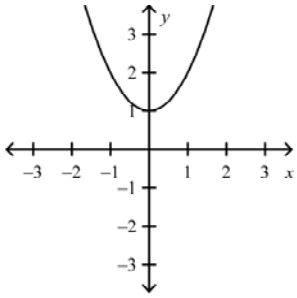

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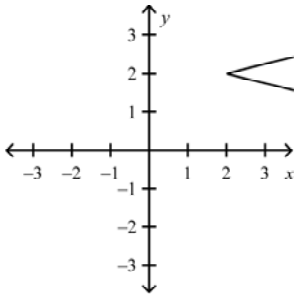


23 The formula to determine the height, h of an object that is $h=-16t^2+s$. Where s is the initial height and t is time in seconds. If a construction worker drops a wrench from a building roof that is 144 ft tall, how long until the wrench hits the ground?

24 $f(x) = 2x - 7$
Find $f(-1)$

25 Subtract the rational expressions
$\frac{7x+3}{2x-5} - \frac{3x-4}{2x-5}$

26 What are the x-intercepts of $y = x^2 + 8x + 12$?

27 What is the vertex of the parabola
$y = x^2 - 8x + 16$?

28 How many roots does the parabola
$y = 2x^2 - x + 4$ have?

29 Is the graph of $y = -\frac{1}{11}(x-4)^2 - 1$ wide, thin, or normal as compared to $y = x^2$?

30 The cost of renting a surf board is $20 an hour plus a $100 deposit. What is the maximum number of hours you can rent the surf board if you cannot exceed $300?

31 Solve the equation $3 - 2(x + 7) = 19$.

32 What is the equation of the line that has a slope of –6 and a y-intercept of 6?

33 The cost of a jet ski lesson on Tamarack Beach can be calculated using the equation $c = 40h + 100$, where c represents the cost of the lesson and h represents the total amount of hours of the lesson. What is the cost of a 4 hour jet ski lesson?

34 Two cars left Petco Park traveling in opposite directions. If one car averages 55 mph and the other averages 70 mph, in how many hours will the distance between the two cars be 250 miles?

35 What is the solution to this system of equations?

$$\begin{cases} 5x - 2y = -95 \\ y = 3x + 63 \end{cases}$$

36 What is the equation of the line that passes through points (1, 10) and (–2, –5)?

37 Graph the equation
$2y + 6x = 12$?

38 Graph the inequality $x < 2$?

39 Graph the equation
$y = 3x - 6$?

40 Graph the system of equations?

$$\begin{cases} y = -4x + 8 \\ y = \frac{-2}{3}x - 1 \end{cases}$$

41 What is the y-intercept of the equation
$6y = 2x + 4$?

42 What is the slope of the line $7x + 5y = 15$?

43 What is the system of equations for the following word problem:

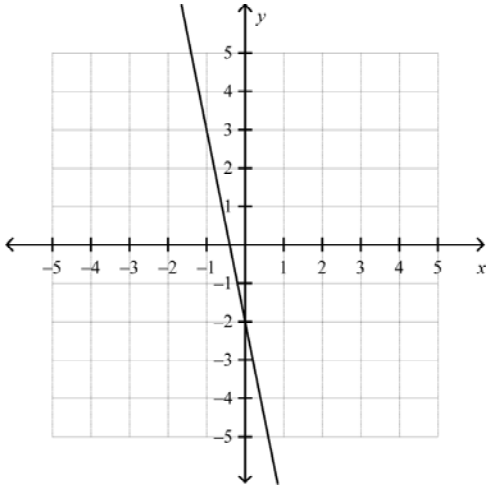
Juanita buys a total of 15 pounds of dark and milk chocolate. Dark chocolate costs $9.75 a pound and milk chocolate costs $3.00 a pound. The total cost of her bill is $33.00.

44 Graph the equation
$2y + 6x = 10$?

45 Graph the equation
$-15x + 3y = 15$?

46 Which is the equation, in slope-intercept form, of the line that has a slope of 4 and passes through the point (–5, 2)?

47 What is the slope of the line shown on the graph below?



48 Which number does not have a reciprocal?

49 Simplify $(5 - 3)^3 - 2(2) - (-7)$

50 Solve. $11 - (x + 2) = 6x$