

1. Solve the linear equation 1._____

$$\frac{1}{5}(10x - 20) = x - 3$$

- a) $\{-1\}$ b) $\{17\}$
c) $\{3\}$ d) $\{1\}$

2. Decide whether the equation is an identity, a conditional equation, or a contradiction. 2._____

$$2(3x - 4) = 6x + 5$$

- a) identity b) conditional equation
c) contradiction d) none of these

3. The formula for the perimeter of a rectangle is given by $P = 2l + 2w$, where l is the length and w is the width. Assume the perimeter of a rectangular plot of land is 480 ft. The length is twice the width. Find the length of the rectangular plot of land. 3._____

- a) 80 ft b) 120 ft
c) 160 ft d) 240 ft

4. A car dealership uses the linear model $y = -1100x + 25000$ to predict the depreciation of car values as time progresses. If x is how old the vehicle is in years and y is the current value of the vehicle, what will the value of the vehicle be 5 years after purchase? 4._____

- a) \$18,400 b) \$19,500
c) \$22,700 d) \$23,900

5. Find the following sum. 5._____

$$7(3x^2 + 2x - 5) + 2(-x^2 + 3)$$

- a) $20x^2 + 14x - 32$ b) $19x^2 + 2x - 2$
c) $28x^2 + 14x - 28$ d) $19x^2 + 14x - 29$

6. Find the following product. 6._____

$$(1 - 3x)(x^2 + 2x - 5)$$

- a) $-3x^3 - 5x^2 + 17x - 5$ b) $x^2 - x - 4$
c) $-3x^3 + 7x^2 + 13x - 5$ d) $-7x^2 + 17x - 5$

7. Factor out the greatest common factor from the following polynomial. 7._____

$$3a^7b^3 - 21a^4b^3$$

- a) $a^4b^3(3a^3 - 21)$ b) $3a^4b^3(a^3 - 7)$
c) $a^4b^3(3a^3b - 21ab)$ d) $3a^4b^3(a^3b - 7ab)$

8. Factor the following polynomial by grouping. 8._____

$$15ab - 6b + 10a - 4$$

- a) $(3b + 2)(5a - 2)$ b) $(3b - 2)(5a + 2)$
c) $(3b + 2)(5a + 2)$ d) $(3b - 2)(5a - 2)$

9. Factor the following trinomial. 9._____

$$6x^2 + 11x - 10$$

- a) $(3x - 2)(2x - 5)$ b) $(3x + 2)(2x - 5)$
c) $(3x - 2)(2x + 5)$ d) $(x + 6)(11x - 10)$

23. Solve the following rational equation. 23._____

$$\frac{2}{x+3} - \frac{1}{2x+1} = \frac{8}{2x^2 + 7x + 3}$$

- a) $\{-3\}$ b) $\{3\}$
c) $\{-\frac{1}{2}\}$ d) No solutions

24. Solve the following radical equation. 24._____

$$\sqrt{3x+13} = x+1$$

- a) $\{-3\}$ b) $\{4\}$
c) $\{-3,4\}$ d) No solutions.

25. Solve the following inequality. Write the solution set in interval notation. 25._____

$$2x + 1 \leq 3x - 2$$

- a) $(-\infty, -3]$ b) $[3, \infty)$
c) $(-\infty, 3]$ d) $[-3, \infty)$

26. Solve the following inequality. Write the solution set in interval notation. 26._____

$$2 \geq \frac{5-3x}{4} > -3$$

- a) $(-1, \frac{17}{3})$ b) $(-1, \frac{17}{3}]$
c) $[-1, \frac{17}{3})$ d) $[-1, \frac{17}{3}]$

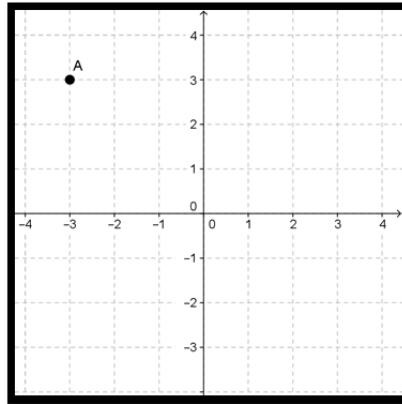
27. Solve the following quadratic inequality. Write the solution set in interval notation. 27._____

$$x^2 - 2x - 35 < 0$$

- a) $(-5,7)$ b) $(-\infty, -5) \cup (7, \infty)$
c) $[-5,7]$ d) $(-\infty, -5] \cup [7, \infty)$

32. Consider the following graph of the point A.

32._____



Which quadrant does A lie in?

- a) Quadrant I
- b) Quadrant II
- c) Quadrant III
- d) Quadrant IV

33. Decide whether the following relation defines a function.

33._____

$$\{(0,1), (1,2), (-1,0), (2, -3), (3, -2)\}$$

- a) Yes, this is a function.
- b) No, this is not a function.

34. Give the domain and range of the following relation.

34._____

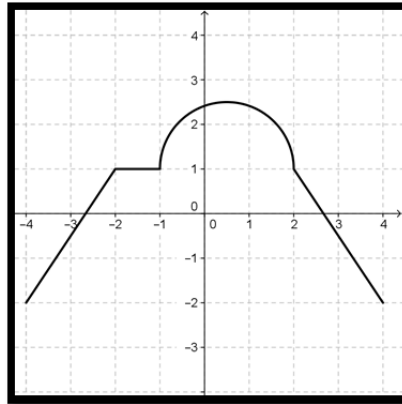
$$y = \sqrt{x - 1}$$

- a) Domain is $(-\infty, \infty)$ and Range is $(-\infty, \infty)$
- b) Domain is $[1, \infty)$ and Range is $(0, \infty)$
- c) Domain is $(1, \infty)$ and Range is $[0, \infty)$
- d) Domain is $[1, \infty)$ and Range is $[0, \infty)$

35. For the function $f(x) = 3x^2 - 7$, find $f(-3)$. 35._____

- a) -34
- b) 20
- c) -16
- d) 2

36. Determine the intervals of the domain for which the following function 36._____ is decreasing.

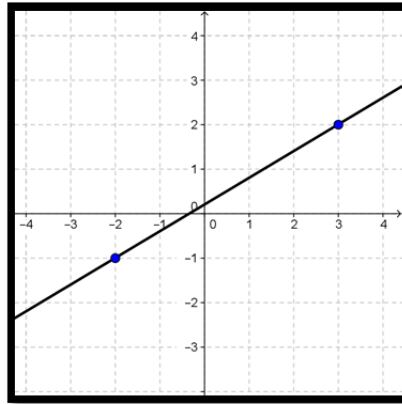


- a) $[-4, -2] \cup [-1, 0.5]$
- b) $[-2, -1]$
- c) $[0.5, 4]$
- d) $[-2, 2.5]$

37. Which of the following pairs of points has slope $2/9$? 37._____

- a) (1,3) and (2, -7)
- b) (1,2) and (3, -7)
- c) (2,3) and (-7,1)
- d) (3,1) and (-7,2)

38. Given the following graph of a linear function, what is the slope? 38. _____



- a) $3/5$
- b) $5/3$
- c) $-3/5$
- d) $-5/3$

39. Write the equation of the line passing through the point $(-3,7)$ with slope zero. 39. _____

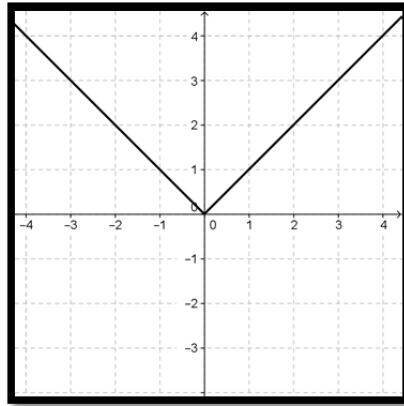
- a) $x = -3$
- b) $y = -3$
- c) $x = 7$
- d) $y = 7$

40. Write the equation in slope-intercept form for a line passing through the point $(-3,2)$ that is parallel to $4x - y = 7$. 40. _____

- a) $y = 4x + 14$
- b) $y = -4x - 10$
- c) $y = -\frac{1}{4}x + \frac{5}{4}$
- d) $y = \frac{1}{4}x + \frac{11}{4}$

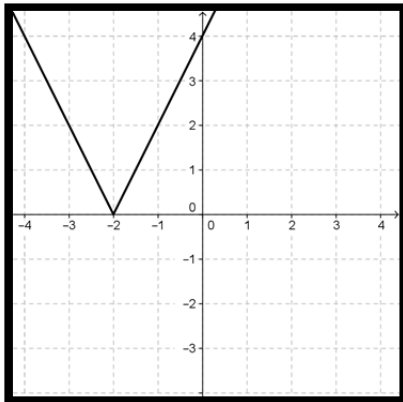
43. The following is a graph of $y = f(x)$.

43. _____

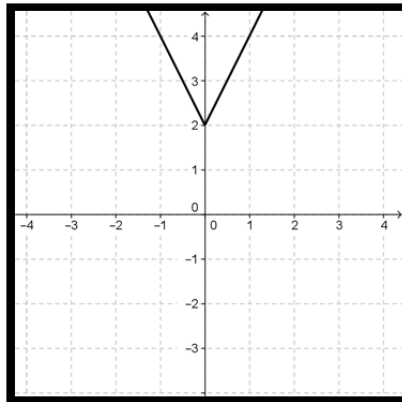


Which is the graph of $y = 2f(x) - 2$?

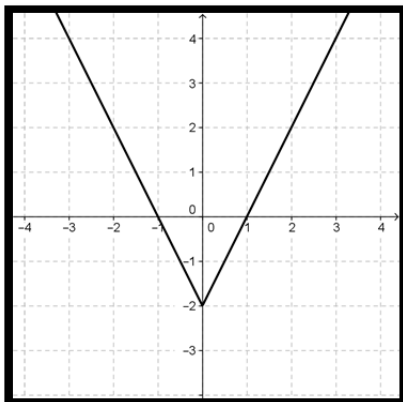
a)



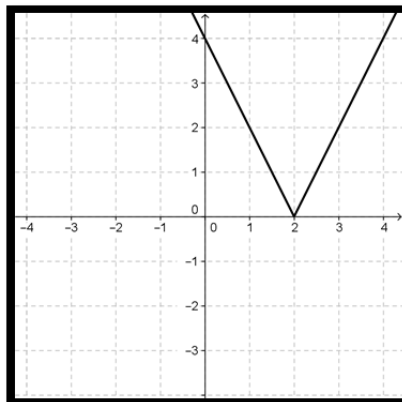
b)



c)



d)



44. Suppose that the point $(1,4)$ is on the graph of $y = f(x)$. Find a point on the graph when y is translated left 3 units and reflected across the x -axis. 44._____

a) $(1, -4)$

b) $(4, -4)$

c) $(-2,4)$

d) $(-2, -4)$

45. Decide which of the following functions is even. 45._____

a) $f(x) = |x|$

b) $f(x) = x + 1$

c) $f(x) = \sqrt{x}$

d) $f(x) = x^3$

46. Let $f(x) = 3x^2 - 1$ and $g(x) = -2x + 7$. Find $(f + g)(-3)$. 46._____

a) 27

b) 39

c) -41

d) -14

47. Use the following table to evaluate $(f/g)(2)$. 47._____

x	$f(x)$	$g(x)$
-1	2	7
0	0	-1
2	-3	4
8	5	2

a) $-3/4$

b) $-1/8$

c) $7/5$

d) $5/7$

48. For the function $f(x) = -3x + 4$, find and simplify 48._____

$$\frac{f(x+h) - f(x)}{h}$$

a) $-3x + 4$

b) $-3x - 3h + 4$

c) $-3h$

d) -3

49. Use the following table to evaluate $(g \circ f)(-1)$.

49._____

x	$f(x)$	$g(x)$
-3	5	-1
-1	-3	5
5	8	-3
8	-1	8

a) -3

b) -1

c) 5

d) 8

50. Let $f(x) = -2x^2 + 1$ and $g(x) = 4x - 3$. Find $(f \circ g)(x)$.

50._____

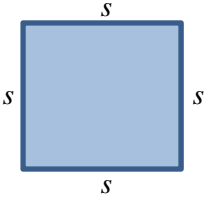
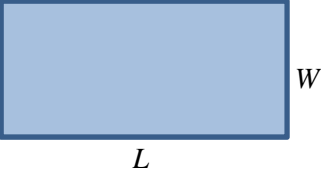
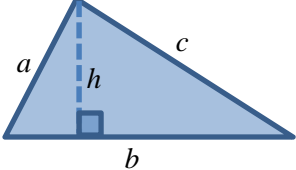
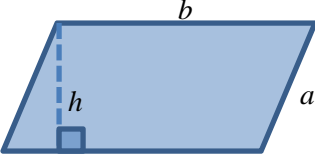
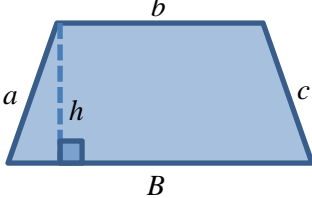
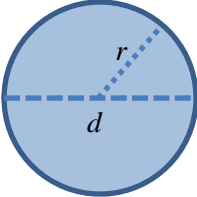
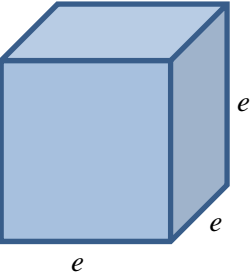

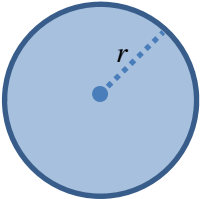
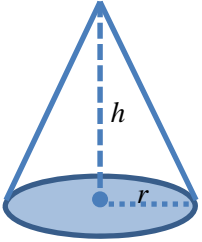
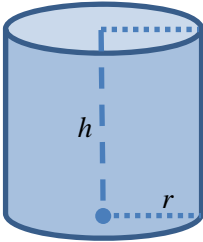
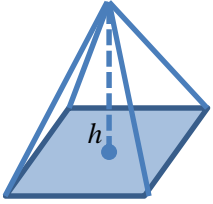
a) $-8x^3 + 6x^2 + 4x - 3$

b) $-2x^2 + 4x - 2$

c) $-8x^2 + 5$

d) $-32x^2 + 48x - 17$

Geometry Formulas

<p>Square Perimeter: $P = 4s$ Area: $A = s^2$</p> 	<p>Rectangle Perimeter: $P = 2L + 2W$ Area: $A = LW$</p> 	<p>Triangle Perimeter: $P = a + b + c$ Area: $A = \frac{1}{2}bh$</p> 
<p>Parallelogram Perimeter: $P = 2a + 2b$ Area: $A = bh$</p> 	<p>Trapezoid Perimeter: $P = a + b + c + B$ Area: $A = \frac{1}{2}h(b + B)$</p> 	<p>Circle Diameter: $d = 2r$ Circumference: $C = 2\pi r = \pi d$ Area: $A = \pi r^2$</p> 
<p>Cube Volume: $V = e^3$ Surface Area: $S = 6e^2$</p> 	<p>Rectangular Solid Volume: $V = LWH$ Surface Area: $S = 2HW + 2LW + 2LH$</p> 	<p>Sphere Volume: $V = \frac{4}{3}\pi r^3$ Surface Area: $S = 4\pi r^2$</p> 
<p>Cone Volume: $V = \frac{1}{3}\pi r^2 h$ Surface Area: $S = \pi r\sqrt{r^2 + h^2}$ <i>(excludes the base)</i></p> 	<p>Right Circular Cylinder Volume: $V = \pi r^2 h$ Surface Area: $S = 2\pi rh + 2\pi r^2$ <i>(includes top and bottom)</i></p> 	<p>Right Pyramid Volume: $V = \frac{1}{3}Bh$ <i>B = area of the base</i></p> 

Answer Key:

1. D	11. D	21. D	31. C	41. A
2. C	12. D	22. A	32. B	42. C
3. C	13. A	23. B	33. A	43. C
4. B	14. C	24. B	34. D	44. D
5. D	15. C	25. B	35. B	45. A
6. A	16. D	26. C	36. C	46. B
7. B	17. C	27. A	37. C	47. A
8. A	18. A	28. B	38. A	48. D
9. C	19. B	29. C	39. D	49. B
10. B	20. B	30. D	40. A	50. D