COMPASS REVIEW PROBLEMS

1. The solution to 2x + 3 = 8 falls between what two consecutive integers?
   A. 1 and 2
   B. 2 and 3
   C. 3 and 4
   D. 4 and 5

2. $\left(\sqrt{6}-6\right)\left(\sqrt{3}+4\right)$ =
   A. $3\sqrt{2}-24$
   B. $-3\sqrt{2}-24$
   C. $3\sqrt{2}-2\sqrt{3}-24$
   D. $3\sqrt{2}+4\sqrt{6}-6\sqrt{3}-24$

3. The ratio 10 to y is 15 to 20. Find y.
   A. 3
   B. 40
   C. $\frac{40}{3}$
   D. $\frac{3}{40}$

4. A line passes through two points with coordinates (2, -8) and (-3, -2). Find the slope of the line ?
   A. $-\frac{5}{6}$
   B. -10
   C. $-\frac{1}{10}$
   D. $-\frac{6}{5}$

5. The solution to the equation 5x = 7 satisfies which of the following statements.
   A. x < 1
   B. 1 < x < 2
   C. 2 < x < 3
   D. x > 3

6. Given the following table, find the relationship between p and t.

t	0	10	20	30
p	50	70	90	110

   A. p = 50 + 2t
   B. p = 50 + $\frac{1}{2}$t
   C. p = 50t + 2
   D. p = 50t + $\frac{1}{2}$

7. Given that A = $\frac{1}{2}(b+B)h$. Use the values A = 81, b = 10 and B = 17 to find h.
   A. 54
   B. 170
   C. 6
   D. 13.5

8. For $x \neq 0$, $\frac{6x^9+21x^8-18x^6+12x^4+5x^3}{3x^6}$
   A. $2x^3+21x^8-18x^6+12x^4+5x^3$
   B. $6x^9+7x^2-6+\frac{4}{x^2}+\frac{5}{3x^3}$
   C. $2x^3+7x^2-6+\frac{4}{x^2}+\frac{5}{3x^3}$
   D. $2x^3+7x^2-6$

9. For $x \neq 0$, $\frac{2x^2}{4}\div\frac{x^3}{28}$ =
   A. $\frac{x}{14}$
   B. $\frac{14}{x}$
   C. $\frac{14x^2}{x^3}$
   D. $\frac{56x^2}{4x^3}$

10. If the width of a rectangle is 3xy and the area is $6x^2y+15xy^2$, what is the length of the rectangle?
    A. $18x^3y^2 + 45x^2y^3$
    B. $2x + 5y$
    C. $2x + 15xy^2$
    D. $18x^2y + 45xy^2$

11. The result of multiplying x by 5 is the same as adding 5 to x. What is x?
    A. 1
    B. 5
    C. $\frac{5}{4}$
    D. $\frac{1}{4}$

12. The slope and y- intercept of $2x + 3y = 6$ are
    A. slope = $-\frac{2}{3}$ and y intercept = 2
    B. slope = $-\frac{2}{3}$ and y intercept = -2
    C. slope = 2 and y intercept = 2
    D. slope = 2 and y intercept = -2

13. The solution to the equation $3x – 2 = 1$is
    A. $x = \frac{1}{3} + 2$
    B. $x = \frac{1}{3} - 2$
    C. $x = \frac{1+2}{3}$
    D. $x = \frac{1-2}{3}$

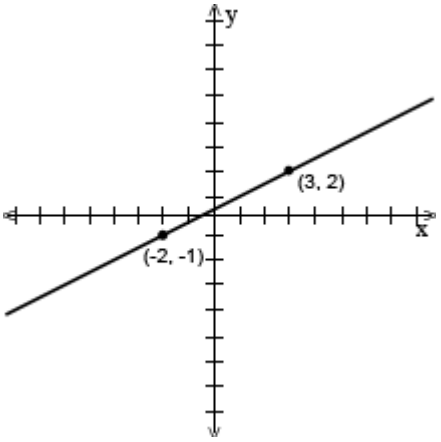
14. The slope of $4x – 2y + 8 = 0$ is
    A. -4
    B. 4
    C. -2
    D. 2

15. The solution to the system containing the equations $x + y = 12$ and $x – y = -4$ is
    A. {(4, 8)}
    B. {(3, 9)}
    C. {(-4, 9)}
    D. ϕ

16. The slope of a line is 2 and the y-intercept is 4. What is the x – intercept?
    A. -2
    B. 2
    C. -4
    D. 4

17. The solution to $6x – (5x – 1) = 2$ is
    A. $\{1\}$
    B. $\left\{\frac{1}{11}\right\}$
    C. $\{-1\}$
    D. $-\left\{\frac{1}{11}\right\}$

18. The slope of the line graphed below is



    A. $-\frac{3}{5}$
    B. $\frac{3}{5}$
    C. $-\frac{5}{3}$

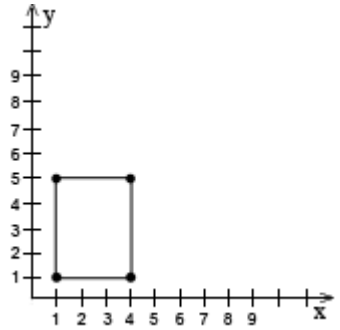
D. $\frac{5}{3}$

19. If $x^2 + 4x + k = 0$ and x = 3 is a solution, what is k?
    A. -18
    B. 18
    C. -21
    D. 21

20. What is the midpoint of the line segment with the given end points (2, 4) and (-6, 2)?
    A. (-2, 3)
    B. (3, -2)
    C. (4, 1)
    D. (1, 4)

21. The y – intercept of x + 2y = 8 is
    A. 8
    B. 4
    C. 2
    D. 0

22. The rectangle below has vertices of (1, 1), (4, 1), (1, 5), and (4, 5). The rectangle is translated so that three of the new vertices are (3, 1), (6, 1), and (3, 5). What are the coordinates of the other vertex?

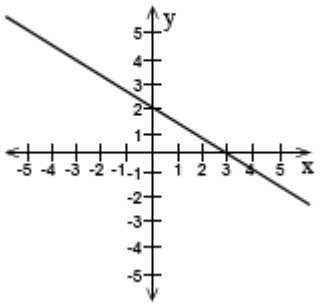


    A. (4, 5)
    B. (5, 5)
    C. (6, 5)
    D. (7, 5)

23. Find x if $\frac{2x}{3} = \frac{16}{x}$.
    A. $\pm 6\sqrt{2}$
    B. $\pm 2\sqrt{6}$
    C. 24
    D. 48

24. The graph of $y = \frac{2}{3}x - 2$ is

A)



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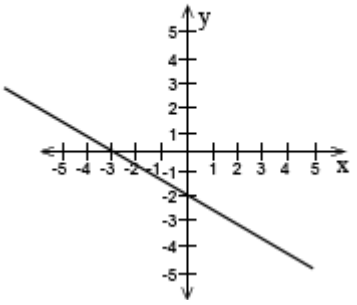

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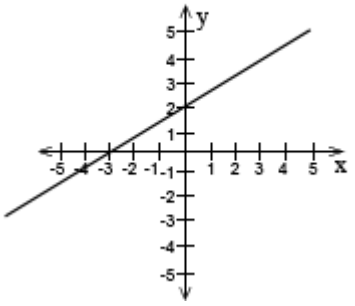

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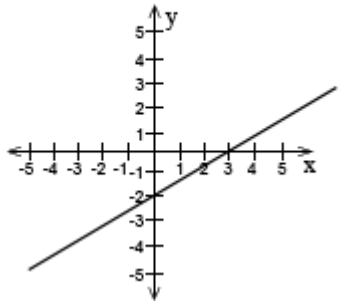


25. $\sqrt{2x^2y^3}\sqrt{5xy}$ =
   A. $\left(xy^2\right)\sqrt{10x}$
   B. $(xy)\sqrt{10y}$
   C. $(10x)\sqrt{xy^2}$
   D. $(10y)\sqrt{xy}$

26. $(2x + 1)(3x – 4) – (6x^2 + x – 3)$ =
   A. -6x – 7
   B. -6x – 1
   C. -4x – 7
   D. -4x – 1

27. $8^{\frac{2}{3}}$ =
   A. $\frac{16}{3}$
   B. $\frac{64}{3}$
   C. 4
   D. 64

28. $(x + 2)^2$ =
   A. $x^3 + 4$
   B. $x^2 + 4x + 4$
   C. $x^2 + 2x + 2x + 4$
   D. $4x^2$

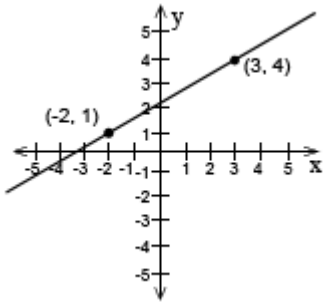
29. $\left(2 - \sqrt{5}\right)\left(5 + \sqrt{5}\right)$ =
   A. 5
   B. $5\text{-}3\sqrt{5}$
   C. $2\sqrt{5}$
   D. $10 - 4\sqrt{5}$

30. If $\frac{1}{2}$ is subtracted from 5 times the reciprocal of a number x, the result is 2. What equation could be used to find x?
   A. $\frac{5}{x} - \frac{1}{2} = 2$
   B. $\frac{1}{2} - \frac{5}{x} = 2$
   C. $\frac{x}{5} - \frac{1}{2} = 2$
   D. $\frac{1}{2} - \frac{x}{5} = 2$

31. If $-3 = \frac{-45}{\sqrt{x^2 - 1}}$, what is the value of x^2 ?
   A. $\pm\sqrt{226}$
   B. $\pm\sqrt{224}$
   C. 226
   D. 224

32. The sum of the solutions to $2x^2 - x - 3 = 0$ is
   A. $-\frac{3}{2}$
   B. $-\frac{1}{2}$
   C. $\frac{1}{2}$
   D. $\frac{3}{2}$

33. Find an estimate for the distance between the points on the axes below.



A. 4.3
B. 5.8
C. 26
D. 34

34. Find the exact distance between the points (3, 0) and $(0, -\sqrt{3})$.

A. $2\sqrt{3}$
B. $3\sqrt{2}$
C. $\sqrt{6}$
D. 12

35. Which of the following are factors of $2x^3 + 4x^2 + 2x$?

I. 2x II. 2x + 1 III. x + 1

A. I, II, and III
B. I and III
C. I and II
D. II and III

36. $\sqrt[3]{250}$ =

A. $25\sqrt[3]{2}$
B. $2\sqrt[3]{5}$
C. $5\sqrt[3]{2}$
D. $5\sqrt[3]{10}$

37. Simplify the expression $\dfrac{\left(4x^{-4}y^3\right)^2}{(xy)^2}$.

A. $\dfrac{8y^4}{x^{10}}$
B. $\dfrac{16y^3}{x^{10}}$
C. $\dfrac{8y^3x}{x^{10}}$
D. $\dfrac{16y^4}{x^{10}}$

38. Martina spends 2.5% of her monthly salary on entertainment each month. Last month, she spent $120 on her entertainment. Which expression represents Martina's monthly salary ?

A. 120(0.025)
B. 120(0.25)
C. $\dfrac{120}{0.25}$
D. $\dfrac{120}{0.025}$

39. For $x \neq 1$, $\dfrac{(3x+6)-3}{6x+6}$ =

A. 2
B. $\dfrac{1}{2}$
C. 3
D. $\dfrac{1}{3}$

40. An equivalent expression for $\left(3x^2 + 6x - 4\right) - (x^2 - 4x - 4)$ is

A. 2x(x + 5)
B. 2x(x – 5)
C. $2(x^2 + x - 4)$
D. $2x(x^2 + 5x - 4)$

41. How much water should be added to 5 gallons of pure orange juice to make an orange juice mixture that is 90% juice ?

A. $\frac{1}{10}$ gallons

B. $\frac{5}{9}$ gallons

C. 1 gallon

D. 5 gallon

42. 15 is 25% of what number?

A. 15

B. $\frac{15}{4}$

C. 75

D. 60

43. The largest solution $0 = x^2 + x - 12$ is

A. -4

B. 4

C. 3

D. -3

44. The solution to $7 - \sqrt{4 - x} = 4$ is

A. 5

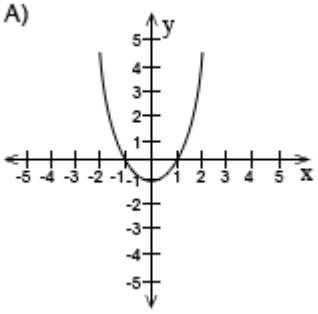
B. -5

C. 13

D. -13

45. The graph $y = x^2 + 1$ is

A)



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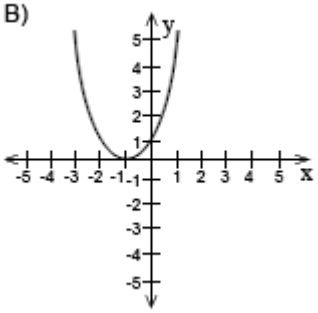

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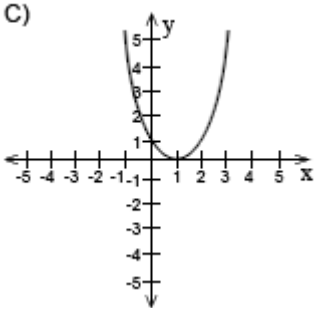

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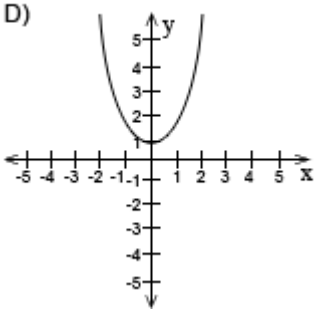


46. The equation of the line with (x, y) coordinates of (8, 5) and (-2, -5) is
    A. Y = x – 3
    B. Y = x + 3
    C. Y = -x +3
    D. Y = -x – 13

47. If x = 4 and y = kx + 2x, then y = 9. What is the value of y when x = 2?
    A. $\frac{5}{2}$
    B. $\frac{7}{2}$
    C. $\frac{9}{2}$
    D. $\frac{11}{2}$

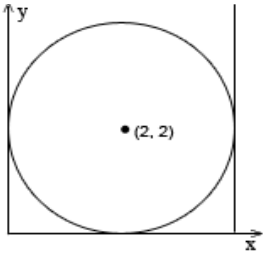
48. The solution to 3 -2x < 5 is
    A. x > -1
    B. x < -1
    C. x > 1
    D. x < 1

49. If m = -3 and n = 2, the value of 5(m + n)(m – n) is
    A. -5
    B. 5
    C. -25
    D. 25

50. The value that makes the expression $\frac{x+4}{3x+6}$ undefined is
    A. no values
    B. -4
    C. -2
    D. 2

51. Use the rule a*b = (3a + 2b)(3a – 2b) to find 4* 1.
    A. -24
    B. 24
    C. 140
    D. -140

52. The line drawn is tangent to the circle with center (2, 2) and radius 2. What are the coordinates of the tangent ?



    A. (2, 4)
    B. (4, 2)
    C. (0, 2)
    D. (2, 0)

1.	B
2.	D
3.	C
4.	D
5.	B
6.	A
7.	C
8.	C
9.	B
10.	B
11.	C
12.	A
13.	C
14.	D
15.	A
16.	A
17.	A
18.	B
19.	C
20.	A
21.	B
22.	C
23.	B
24.	D
25.	A
26.	B

27.	C
28.	B
29.	B
30.	A
31.	C
32.	C
33.	B
34.	A
35.	B
36.	C
37.	D
38.	D
39.	B
40.	A
41.	B
42.	D
43.	C
44.	B
45.	D
46.	A
47.	C
48.	A
49.	D
50.	C
51.	C
52.	B

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