Name:_____Period:_____ SCORE:_____

Practice Core Review #3 Intermediate 2

1. Which of the following numbers are rational?

$\pi, -\sqrt{9}, 3.5, \sqrt{2}, 5.333$

a. π and $\sqrt{2}$
b. π, 3.5, and 5.333
c. $-\sqrt{9}$, 3.5, and 5.333
d. π, $-\sqrt{9}$, 3.5, $\sqrt{2}$, and 5.333

2. The $\sqrt{50}$ is between which two integers?

a. 7 and 8
b. 25 and 26
c. 6 and 7
d. 24 and 25

3. In which list are the numbers placed in the correct order from least to greatest?

a. 6.2, $\frac{37}{6}$, $3\sqrt{15}$, $\sqrt{36}$
b. $\sqrt{36}$, $3\sqrt{15}$, $\frac{37}{6}$, 6.2
c. $\sqrt{36}$, $\frac{37}{6}$, 6.2, $3\sqrt{15}$
d. $\frac{37}{6}$, $\sqrt{36}$, $3\sqrt{15}$, 6.2

4. Simplify the following expression:

$5 - 8^2 + 3(4^3 - 32)$

a. -71
b. -27
c. 27
d. 37

5. Which of the following is a nonlinear equation?

a. $y = \frac{x}{3} + 4$
b. $y = 3x + 4$
c. $y = \frac{3}{x} + 4$
d. $y = \frac{x+3}{4}$

6. What is the slope of the line that contains (-4,7) and (-5,4)?

a. -3
b. 3
c. $\frac{1}{3}$
d. $-\frac{1}{3}$

7. Which statement about the graphs of y=2x and y=3x is true?

a. Their y-intercepts are the same, but the slope of y = 2x is greater.
b. Their y-intercepts are the same, but the slope of y = 3x is greater.
c. Their slopes are the same, but the y-intercept of y = 2x is greater
d. Their slopes are the same, but the y-intercept of y = 3x is greater.

8. Compare the lines y = 2x + 2 and y = 2x and determine which of the following is true.

a. They are parallel.
b. They are perpendicular.
c. They are the same line.
d. They have the same y-intercept.

9. At 8:00 p.m., the temperature is 69° F. At 11:00 p.m., it is 53° F. Estimate the average rate of change in temperature?

a. 5.3° F per hour
b. 0.2° F per hour
c. 3° F per hour
d. 16° F per hour

10. Which of the following is the equation of the line that passes through points (8,4) and (10,2)?

a. $y = x + 12$
b. $y = 2x + 10$
c. $y = -x + 12$
d. $y = 2x + 12$

11. Write the equation of the line that passes through (3,5) and has a slope of 4.

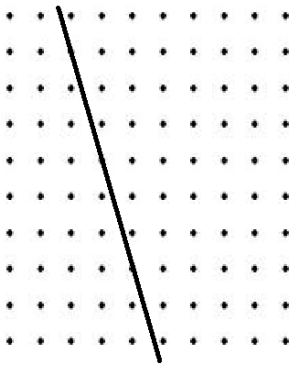
a. $y = 4x + 7$
b. $y = -4x - 5$
c. $y = 4x - 7$
d. $y = 4x + 5$

12. What is the equation, in standard form, of the line with a slope = -1 and y-intercept = 4?

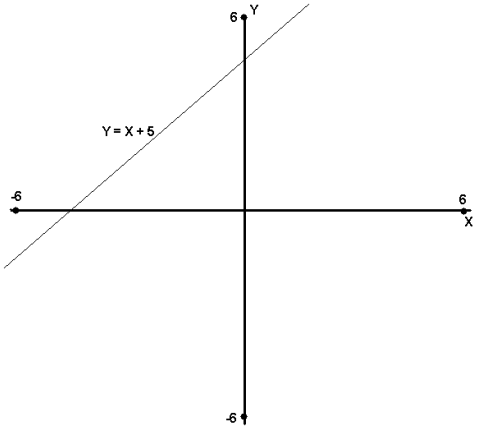
a. $-x - y = 4$
b. $-x + y = -4$
c. $x - y + 4$
d. $x + y = 4$

13. What is the slope of the line graphed here?

a. -3
b. 3
c. $\frac{1}{3}$
d. $-\frac{1}{3}$



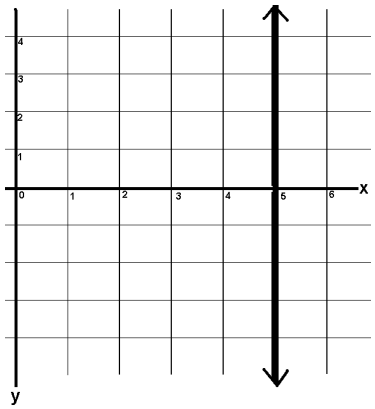
14. Given the graph of $y = x + 5$, which statement is true about the graph of $y = x + 2$?



a. The line $y = x + 2$ is shifted 3 places down on the y axis.
b. The two lines are perpendicular.
c. The line $y = x + 2$ is shifted three places to the left on the x-axis.
d. The line $y = x + 2$ has a smaller slope than the line $y = x + 5$.

15. What is the equation of this graphed line?

a. $y = 5$
b. $x = 5$
c. $y = 5x + 1$
d. $x + y = 5$



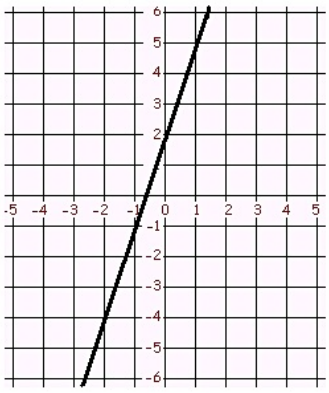
16. What is the equation of the line graphed here?

a. $y = \frac{2}{3}x + 2$

b. y = 2x + 3

c. y = 3x + 2

d. y = 2x + 2



17. Which expression is equivalent to
4x + 2(x – 3) + 10 ?

a. 6x + 4

b. 6x – 16

c. $6x^2 + 4$

d. $6x^2 – 16$

18. Find the difference of the polynomials.
$(10a^2 – 15a – 90) – (2a^2 + 5a – 1)$

a. $12a^2 – 10a – 91$

b. $8a^2 – 20a – 89$

c. $8a^2 + 20a + 89$

d. $8a^2 – 10a – 91$

19. Solve -4x + 4 > 16

a. x > -3

b. x > -5

c. x < -3

d. x < -5

20. The number of chirps that a cricket makes per minute and the air temperatures are related by a linear function. Some crickets chirp 100 times per minute at 65° F and 160 times a minute at 80° F. On average, how many more times a minute do these crickets chirp for each 1° F rise in temperature?

a. 4 c.15

b. 2 d. 60

21. If the following system is to be solved by elimination of x, and the first equation is multiplied by 3, then by which number should the second equation be multiplied?

2x - 5y = 1

-3x + 7y = -3

a. 3

b. 5

c. -3

d. 2

22. Determine the number of possible solutions for this system of equations.

2x + y = 3

4x + 2y = 8

a. one solution

b. no solution

c. two solutions

d. infinitely many solutions

23. What correlation would best describe the relationship between outdoor air temperatures and the amount a homeowner spends on heating?

a. positive
b. negative
c. constant
d. no correlation

24. The median price y (in thousands of dollars) of existing one-family homes for 1990 through 1993 in United States is given in this table (Source: National Association of Realtors). X is the year with x = 0 corresponding to 1990, x = 1 corresponding to 1991, etc. The best fit equation for this data is y = 3.73x + 95.98. Use the best fit equation to predict the median price of a one-family home in 1994.

X	1990	1991	1992	1993
Y	95.5	100.3	103.7	106.8

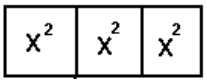
a. $112,400
b. $111,600
c. $110,900
d. $110,100

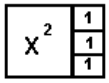
25. The table below shows the total number of clients that an accounting firm serves each month. If x represents the number of months of operation and y represents the total number of clients that are served by the firm each month, which equation best shows the relationship between x and y?

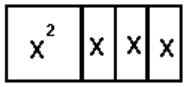
a. y = 3x
b. y = x – 4
c. y = 5x – 2
d. y = 5x + 3

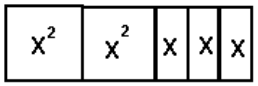
Months of Operation	Number of Clients
1	3
2	8
3	13
4	18
5	23
6	28

26. Which model shows the product for x(x + 3)?

a. 

b. 

c. 

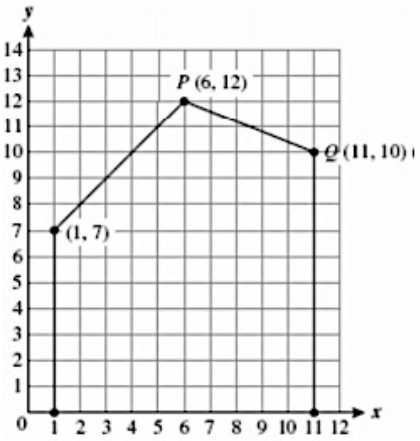
d. 

27. Solve the equation $2(4x - 5) + 6x = 6 - 2x$

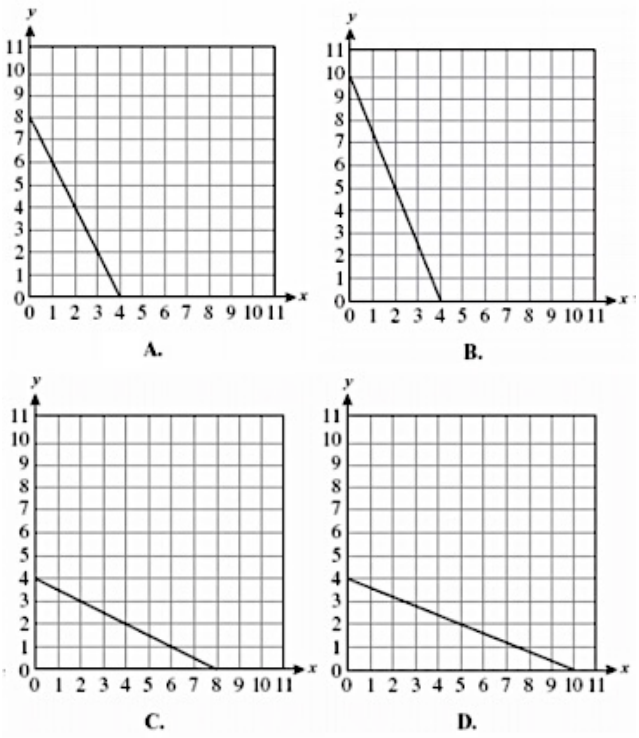
a. $x = 4$
b. no solution
c. $x = -\frac{1}{3}$
d. $x = 1$

28. Which of the following equations best represents the line that contains PQ ?

a. $y = -\frac{5}{2}x + 14.4$
b. $y = \frac{5}{2}x + 27$
c. $y = -\frac{2}{5}x + 14.4$
d. $y = \frac{2}{5}x + 27$



29. Which of the following shows the graph of the equation 5x + 2.5y = 20 ?



30. What could be the equations of a line with an undefined slope?

a. y = 7
b. x = -3
c. x + y = 5
d. x = y

31. Which of the following represents the slope of the equation 57x - 95y = 0?

a. 57
b. -95
c. 3/5
d. -2/3

32. David is training for a marathon. He writes down the time and distance for each training run and then records the data on a scatter plot. He has drawn a line of best fit on the scatter plot, as shown below.

Which statement best expresses the meaning of the slope as a rate of change for this line of best fit?

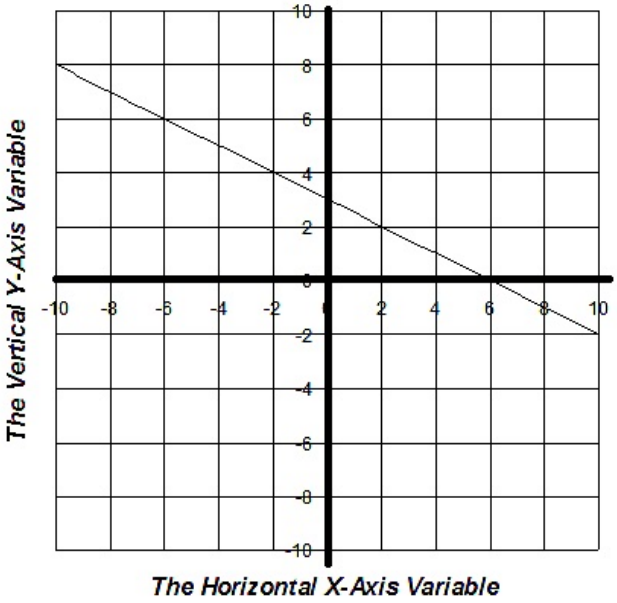
A. It represents the number of miles he will have to run to finish the marathon.

B. It represents the average speed, in miles per hour, of his training runs.

C. It represents the number of hours he will need to finish the marathon.

D. It represents the distances, in miles, that he ran while he was training.

Continue on to the next page!



Use the graph above to answer #33-36.

33. Identify the *y*-intercept of the line in the graph above.
    a. 0
    b. 6
    c. 2
    d. 3

34. What is the *x*-intercept of the line in the graph above?
    a. 0
    b. 6
    c. 2
    d. 3

35. What is the slope of the equation plotted in the graph above?
a. 1
b. -0.5
c. 2
d. -2

36. Write the equation of the line of the graph above in slope-intercept form.
    a. $y = 3x + 6$
    b. $y = -2x + 6$
    c. $y = 6x + 3$
    d. $y = -\frac{1}{2}x + 3$

37. For the linear equation, $y = -2x - 4$, identify the *y*-intercept.
    a. -2
    b. -4
    c. 2
    d. 4

38. For the linear equation, $y = -2x - 4$, identify the *x*-intercept.
    a. -2
    b. -4
    c. 2
    d. 4

39. For the linear equation, $y = -2x - 4$, identify the *y*-value when the variable *x* equals -6.
    a. -8
    b. 2
    c. 8
    d. -16

40. For the linear equation, $y = -2x - 4$, identify the *y*-value when the variable *x* equals 3.
    a. -6
    b. -8
    c. 2
    d. -10

TRUE / FALSE QUESTIONS

T F 41. In the equation y = mx + b, if *b* is positive, the line cuts the *y*-axis below the origin.

T F 42. If the line slopes downward, *m* is negative.

T F 43. The equation, $y = 2x - 5$, cuts the x-axis to the left of the origin.

Practice Core Review #3 Intermediate 2

Answer Key

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