1.

If 4t = 24, then what is the value of 5t – 8 ?

A) 6
B) 38
C) 0
D) 22

2.

If $\frac{21-x}{3}$ = 4, what is the value of x ?

A) 1
B) 9
C) 12
D) 8

3.

C + D = 90

For desserts at a dinner party, guests are invited to bring a number of cookies, C, or a number of doughnuts, D. In the equation above, what does the number 90 represent?

A) The number of cookies
B) The number of doughnuts
C) The total number of cookies and doughnuts
D) The percentage of cookies and doughnut, relative to the other desserts

4.

For i = $\sqrt{-1}$, which of the following complex numbers is equivalent to (7 + 11i) – (-3i^2 + 2i) ?

A) 10 – 13i
B) 10 + 13i
C) 4 + 9i
D) 4 – 9i

5.

What are the solutions to $x^2 - 5x + 6 = 0$?

A) 2, 3
B) -2, -3
C) 5, 6
D) 1, 6

6.

$$a = \frac{7b+2c}{4}$$

For the above algebraic expression, which of the following choices best expresses c in terms of a and b ?

A) 7b – 4a – 2
B) 4a – 7b + 2
C) $\frac{7b-4a}{2}$
D) $\frac{4a-7b}{2}$

7.

x	p(x)	r(x)
1	4	2
2	7	4
3	12	6
4	19	8
5	28	10
6	39	12

The table above shows some values for the functions p and r. For what value of x does p(x) – r(x) = 11 ?

A) 1
B) 3
C) 4
D) 5

8.

$$\frac{a^{\frac{2}{3}}b^{-4}}{a^{-3}b^{\frac{1}{5}}}$$

The expression above is equivalent to which of the following?

A) $\frac{a^3\sqrt[3]{a^2}}{b^4\sqrt[5]{b}}$
B) $\frac{\sqrt[3]{a^5}}{\sqrt[5]{b^4}}$
C) $\frac{a}{b}$
D) $\frac{a^3}{b^5}$

9.

$$(x - 3)^2 + (y + 10)^2 = 36$$

For the equation of a circle shown above, which of the following would be the coordinates of the center of the circle (x,y) as well as the radius?

	Center (x,y)	Radius
A)	(-3, 10)	6
B)	(3, -10)	6
C)	(-3, 10)	36
D)	(3, 10)	36

10.

The price of a barrel of oil is $100 in January. If the price of a barrel of oil increases 10% from January to February, and then another 10% from February to March, what is the price of the barrel of oil in March?

A) $121
B) $120
C) $110
D) $10,000

11.

$$\frac{1}{6x+7} + 4$$

Which of the following is equivalent to above expression for x > 0 ?

A) $\frac{6x+8}{6x+7}$
B) $\frac{24x+28}{6x+7}$
C) $\frac{24x+29}{6x+7}$
D) $\frac{5}{6x+7}$

12.

What rational number is halfway between $\frac{1}{5}$ and $\frac{1}{7}$?

A) $\frac{1}{2}$
B) $\frac{1}{6}$
C) $\frac{2}{35}$
D) $\frac{6}{35}$

13.

What are the solutions to $4x^2 - 24x + 8 = 0$?

A) $-3 \pm \sqrt{7}$
B) $4 \pm \sqrt{11}$
C) $-6 \pm \sqrt{11}$
D) $3 \pm \sqrt{7}$

14.

$(rx + 2)(3x^2 - sx + 8) = 12x^3 - 22x^2 + 18x + 16$

The equation above is true for all values of x. and r and s are constants. What is the value of r + s ?

A) -18
B) 11
C) 18
D) 30

15.

$\sqrt{9x} = x - 4$

What is the solution set for the above equation?

A) {1}
B) {16}
C) {1, 16}
D) There are no solutions to the given equation

16.

If $\frac{4}{7}$ q = $\frac{10}{3}$, then q =

17.

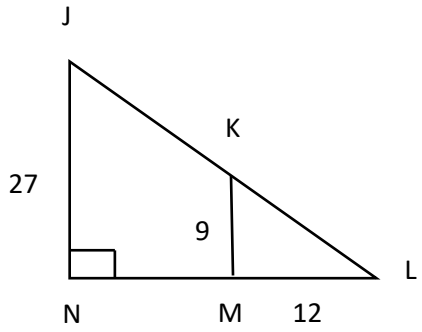
$$x + 8y = 10$$
$$-x - y = 4$$

For the system of equations above, what is the value of y ?

18.

A line with the equation y = c intersects the y-axis and a parabola with the equation y = $x^2 - 12x + 20$ at the same point. What is the value of c ?

19.



In the figure above, $\overline{KM}$ is parallel to $\overline{JN}$. What is the length of $\overline{JL}$?

20.

A town with a population of 8,000 has seen its population decline 3% per year for the past 11 years. If the expression $8000(x)^t$ is used to determine the town's population at any given time, what is the value of x in this expression?

Answer Key

A= 3

B= 4

C= 4

D= 4

1. D
2. B
3. B
4. C
5. A
6. D
7. C
8. A
9. B
10. A
11. C
12. D
13. D
14. B
15. C
16. $\frac{70}{12}$
17. 2
18. 20
19. 45
20. .97