ALGEBRA 1 TEST 3

Name_____ Date_____

Directions: Complete as many problems as you can in the 30 minutes allotted to you. No calculators!

1. Solve $-x^2 - 7 = -71$

(**A**) ± 8 (**B**) ± 32 (**C**) $\sqrt{78}$ (**D**) 64 (**E**) no real number

2. Solve $-\frac{x}{4} + 2 < -6$

(**A**) $x < 16$ (**B**) $x > 16$ (**C**) $x > 22$ (**D**) $x > 26$ (**E**) $x > 32$

3. The volume of a cylinder is 640π and the diameter is 16. How much larger is the height than the radius?

(**A**) 1 (**B**) 2 (**C**) 3 (**D**) 4 (**E**) 5

4. Which of the following is equivalent to $3^4 \cdot 9^2 \cdot 3$?

(**A**) 3^7 (**B**) 3^8 (**C**) 3^9 (**D**) 3^{16} (**E**) 3^{17}

5. Simplify $-6x^3 - 5x - 4 + 2x^2 - x + 2x^3 - 6 - 7x^2$

(**A**) $-4x^3 - 5x^2 - 6x - 2$ (**B**) $-4x^3 - 5x^2 - 6x - 10$ (**C**) $-4x^3 - 5x^2 + 4x - 10$

(**D**) $-4x^3 - 5x^2 + 4x - 2$ (**E**) $-4x^3 - 5x^2 - 5x - 2$

6. When throwing two dice, what is the probability of the two dice adding up to a number greater than 9?

(**A**) $\frac{1}{6}$ (**B**) $\frac{1}{9}$ (**C**) $\frac{1}{12}$ (**D**) $\frac{1}{16}$ (**E**) $\frac{1}{18}$

7. What is the probability of guessing correctly 5 of these questions in a row if you could eliminate 3 wrong choices from each of the 5 questions?

(**A**) $\frac{1}{10}$ (**B**) $\frac{1}{16}$ (**C**) $\frac{1}{18}$ (**D**) $\frac{1}{24}$ (**E**) $\frac{1}{32}$

8. Simplify $\frac{\pm 10 - 12}{2}$

(**A**) 0 (**B**) ± 1 (**C**) ± 11 (**D**) -1 and -11 (**E**) 1 and 11

9. What quadrant is $(-463, -894)$ located in?

(**A**) I (**B**) II (**C**) III (**D**) IV (**E**) V

10. Two angles of a triangle are $68\frac{2}{3}^\circ$ each. What is the measure of the third angle of the triangle?

(**A**) $42\frac{2}{3}$ (**B**) $52\frac{2}{3}$ (**C**) $62\frac{2}{3}$ (**D**) $68\frac{2}{3}$ (**E**) $72\frac{2}{3}$

11. Which of the following equations would not be dependent with $2x - 3y = -1$ in a system of equations?

(**A**) $14x = 21y - 7$ (**B**) $8 - 16x = -24y$ (**C**) $-6 = 12x - 18y$ (**D**) $-12y = -8x - 4$ (**E**) $18x + 9 = 27y$

12. Which point is on $-5y - 3x = -15$?

(**A**) $(35, -16)$ (**B**) $(-20, -9)$ (**C**) $(-30, 21)$ (**D**) $(-15, 13)$ (**E**) $(10, 6)$

13. Which of the following are functions?

I. $y = 4x^2$ II. $\{(5, -3)(-5, 3)(6, -3)\}$ III. $x + y = 0$

(**A**) II (**B**) I and II (**C**) I and III (**D**) II and III (**E**) I, II, and III

14. If a line has a slope of $-\frac{2}{3}$ and contains the point $(-12, -4)$, find the *x*-coordinate of the ordered pair when $y = -18$.

(**A**) -6 (**B**) -3 (**C**) 3 (**D**) 6 (**E**) 9

15. Simplify $\dfrac{10x^3-4x^2}{30x^4-12x^3}$.

(**A**) $\dfrac{5x-2}{30x-12}$ (**B**) $\dfrac{2\left(5x^2-2x\right)}{3x^3\left(10x-4\right)}$ (**C**) $\dfrac{2x\left(5x^2-2x\right)}{3x^2\left(10x-4\right)}$ (**D**) $\dfrac{1}{3x}$ (**E**) $\dfrac{5x-2}{15x^3-6x^2}$

16. Which point is not a member of the solution set $\begin{cases}-6x+7y<42\\5y+2x\geq -10\end{cases}$?

(**A**) $(-5,0)$ (**B**) $(-4,2)$ (**C**) $(-1,5)$ (**D**) $(3,-4)$ (**E**) $(1,-2)$

17. Solve $6-\dfrac{x}{\frac{2}{3}}<-12$.

(**A**) $x>4$ (**B**) $x<12$ (**C**) $x>12$ (**D**) $x<27$ (**E**) $x>27$

18. $\left(4a^{3x^3}\right)^2=$

(**A**) $8a^{9x^6}$ (**B**) $16a^{9x^6}$ (**C**) $16a^{6x^3}$ (**D**) $16a^{6x^9}$ (**E**) $16a^{9x^9}$

19. Simplify $\dfrac{4x+2}{a-b}+\dfrac{3x-1}{b-a}-\dfrac{7x+4}{a-b}$

(**A**) $\dfrac{-6x-3}{a-b}$ (**B**) $\dfrac{-6x-1}{a-b}$ (**C**) $\dfrac{-6x+1}{a-b}$ (**D**) $\dfrac{-6x+3}{a-b}$ (**E**) $\dfrac{-6x+7}{a-b}$

20. Which of the following numbers is between $4\sqrt{15}$ and $3\sqrt{30}$?

(**A**) $2\sqrt{70}$ (**B**) $10\sqrt{2}$ (**C**) $6\sqrt{7}$ (**D**) $6\sqrt{5}$ (**E**) $12\sqrt{2}$

21. If the distance between (a,b) and (c,d) is e, find b.

(**A**) $d\pm\sqrt{e^2-(a-c)^2}$ (**B**) $-d\pm\sqrt{(a+c)^2-e^2}$ (**C**) $d\pm\sqrt{(a-c)^2-e^2}$

(**D**) $-d\pm(a+c-e)$ (**E**) $-d\pm(a-c-e)$

22. The line that goes through $\left(-\dfrac{2}{3},4\dfrac{1}{4}\right)$ and $\left(q,-8\dfrac{3}{4}\right)$ has a slope of 2. Find q.

(**A**) $-7\dfrac{1}{6}$ (**B**) $-7\dfrac{1}{2}$ (**C**) $-7\dfrac{1}{3}$ (**D**) $-7\dfrac{5}{6}$ (**E**) $-7\dfrac{2}{3}$

23. Solving the following system for e by substitution yields which equation in the process? $\begin{cases}3e-5f=15\\2e+3f=7\end{cases}$

(**A**) $3e-5\left(-\dfrac{2}{3}e+\dfrac{7}{3}\right)=15$ (**B**) $3e-5\left(-\dfrac{2}{3}e-\dfrac{7}{3}\right)=15$ (**C**) $3e-5\left(\dfrac{2}{3}e-\dfrac{7}{3}\right)=15$

(**D**) $3e-5\left(\dfrac{2}{3}e+\dfrac{7}{3}\right)=15$ (**E**) $3e+5\left(\dfrac{2}{3}e+\dfrac{7}{3}\right)=15$

24. When $-2x^4-4x^3+3x-1$ is divided by $x-1$, what is the remainder?

(**A**) -6 (**B**) -5 (**C**) -4 (**D**) -3 (**E**) -2

25. The largest of three consecutive multiples of seven is $\dfrac{x+11}{6}$. What is the smallest of the three numbers?

(**A**) $\dfrac{x-157}{6}$ (**B**) $\dfrac{x-73}{6}$ (**C**) $\dfrac{x-31}{6}$ (**D**) $\dfrac{x-1}{6}$ (**E**) $\dfrac{x+5}{6}$

ALGEBRA 1 TEST 3 ANSWERS

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

1. $x^2 = 64 \rightarrow x = \pm 8$
2. $-x < -32 \rightarrow x > 32$
3. 2
4. $3^4 \cdot 3^4 \cdot 3 = 3^9$
5. $-4x^3 - 5x^2 - 6x - 10$
6. $\frac{6}{36} = \frac{1}{6}$
7. $\left(\frac{1}{2}\right)^5 = \frac{1}{32}$
8. –1 and -11
9. III
10. $42\frac{2}{3}$
11. $8 - 16x = -24y \rightarrow 2x - 3y = 1$
12. $-3(-30) - 5(21) = -15$
13. I, II, III
14. $-18 = -\frac{2}{3}x - 12 \rightarrow x = 9$
15. $\frac{2x^2}{6x^3} = \frac{1}{3x}$
16. $(3, -4)$
17. $x > 12$
18. $16a^{6x^3}$
19. $\frac{4x + 2 - 3x + 1 - 7x - 4}{a - b} = \frac{-6x - 1}{a - b}$
20. $\sqrt{252}$ is between $\sqrt{240}$ and $\sqrt{270}$
21. $(b - d)^2 = e^2 - (a - c)^2 \rightarrow b = d \pm \sqrt{e^2 - (a - c)^2}$
22. $-7\frac{1}{6}$
23. $3e - 5\left(-\frac{2}{3}e + \frac{7}{3}\right) = 15$
24. -4
25. $\frac{x - 73}{6}$