ALGEBRA 1 TEST 4

Name_____ Date_____

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

1. Solve $\dfrac{x}{-3\frac{1}{2}} = 14$.

(**A**) -49 (**B**) -42 (**C**) -4 (**D**) $10\frac{1}{2}$ (**E**) $17\frac{1}{2}$

2. When solving $16 = \left(\dfrac{3}{x-2}\right)^2$, what is the largest value?

(**A**) $-\frac{13}{4}$ (**B**) $-\frac{5}{4}$ (**C**) $\frac{5}{4}$ (**D**) $\frac{11}{4}$ (**E**) $\frac{13}{4}$

3. If $\dfrac{-27}{a+b} = -9$, find the value of $\dfrac{1}{a+b}$.

(**A**) -3 (**B**) $-\frac{1}{3}$ (**C**) $\frac{1}{3}$ (**D**) $\frac{1}{18}$ (**E**) 3

4. The volume of a cylinder is 256π and the height is 4. Find the radius.

(**A**) 2 (**B**) 4 (**C**) 8 (**D**) 12 (**E**) 16

5. If one angle of a right triangle has a measure of 17.9°, which of the following is one of the other angles?

(**A**) 62.1° (**B**) 72.1° (**C**) 82.1° (**D**) 82.2° (**E**) 82.3°

6. The four angles of a quadrilateral are x, $2x$, $3x$, and $4x$, where x is measured in degrees. Find the measure of x.

(**A**) 18° (**B**) 24° (**C**) 32° (**D**) 36° (**E**) 48°

7. Expand $\left(4x^3 + x + 2\right)5x^3 - 2x^4$.

(**A**) $20x^9 + 3x^4 + 10x^3$ (**B**) $20x^9 - 2x^4 + 15x^3$ (**C**) $20x^9 - 8x^7 - 2x^5 + x^4 + 10x^3$
(**D**) $20x^6 + 3x^4 + 10x^3$ (**E**) $-8x^7 + 20x^6 - 2x^5 + x^4 + 10x^3$

8. Six less than a number is equal to three times the sum of twice a number and 6. Find the number.

(**A**) $-\frac{24}{5}$ (**B**) $-\frac{12}{7}$ (**C**) -24 (**D**) -12 (**E**) -4

9. Simplify $5x^2\left(6x-2\right) - 3x\left(4x+2\right) - 2\left(-5x+1\right)$

(**A**) $30x^3 - 22x^2 + 4x - 2$ (**B**) $30x^3 - 22x^2 - 16x - 2$ (**C**) $30x^3 - 22x^2 + 4x + 2$
(**D**) $30x^3 - 22x^2 - 16x + 2$ (**E**) $-8x - 2$

10. Evaluate $-8a + 7a^2 - 3 + 4a - 16a^2 - 2 + 9a^2 + 5a + 1$ if $a = 2\frac{9}{17}$

(**A**) $-1\frac{9}{17}$ (**B**) $-1\frac{8}{17}$ (**C**) 0 (**D**) $2\frac{9}{17}$ (**E**) $4\frac{9}{17}$

11. What type of roots does $-5x^3 - 3x = 9x^2$ have?

(**A**) 2 real and 2 complex (**B**) 3 complex (**C**) 2 real and 1 complex
(**D**) 1 real and 2 complex (**E**) 3 real

12. When the largest of 4 consecutive multiples of 4 is doubled, it becomes 8 less than the smallest. Find the sum of the smallest and largest.

(**A**) -52 (**B**) -48 (**C**) -36 (**D**) -25 (**E**) -24

13. The slope of the line that goes through $\left(-\frac{1}{2},-\frac{1}{12}\right)$ and $\left(y,\frac{1}{6}\right)$ is $\frac{2}{3}$. Find *y*.

(A) $-\frac{1}{2}$ **(B)** $-\frac{1}{3}$ **(C)** $-\frac{1}{4}$ **(D)** $-\frac{1}{8}$ **(E)** $\frac{1}{3}$

14. Evaluate $-5x^{-3}+2x^{-5}$ if $x=-\frac{1}{2}$.

(A) -104 **(B)** -34 **(C)** -24 **(D)** 34 **(E)** 104

15. The number of teachers was $\frac{1}{24}$ the number of students. What percent of the school were students?

(A) $\frac{23}{24}\cdot 100\%$ **(B)** $\frac{23}{24}\div 100\%$ **(C)** $\frac{1}{24}\cdot 100\%$ **(D)** 95% **(E)** 96%

16. What is the *x* coordinate of the vertex for $x=-3y^2+5y-\frac{2}{36}$?

(A) $-\frac{77}{36}$ **(B)** $-\frac{51}{18}$ **(C)** 2 **(D)** $\frac{49}{18}$ **(E)** $\frac{73}{36}$

17. A line passes through $(16,-4)$ and has a slope of $-\frac{7}{4}$. Find the value of $\frac{2}{3}\left(y+\frac{7}{4}x\right)$.

(A) -6 **(B)** $-\frac{64}{3}$ **(C)** $\frac{64}{3}$ **(D)** 6 **(E)** 16

18. $l_1\perp l_2$, $l_1\|l_3$, and the equation of l_2 is $5x-3y=78{,}456$. Using the equation for l_3 that goes through $(5{,}000,-2{,}000)$, find the value of $y+\frac{3}{5}x-8{,}000$.

(A) $-9{,}000$ **(B)** $-8{,}000$ **(C)** $-7{,}000$ **(D)** $-6{,}000$ **(E)** $-5{,}000$

19. If $y=jx+10$ is a linear equation that goes through $(5,-240)$ and $(12,c)$. Find *c*.

(A) -610 **(B)** -590 **(C)** -564 **(D)** -542 **(E)** -532

20. If $-de^2-fe-g=0$, then $e=$

(A) $\frac{f\pm\sqrt{f^2+4dg}}{-2d}$ **(B)** $\frac{-f\pm\sqrt{f^2-4dg}}{-2d}$ **(C)** $\frac{f\pm\sqrt{f^2-4dg}}{-2d}$

(D) $\frac{-f\pm\sqrt{f^2+4dg}}{-2d}$ **(E)** $\frac{-f\pm\sqrt{f^2+4dg}}{2d}$

21. For a trapezoid, the nonparallel sides have lengths $3\sqrt{5}$ and $7\sqrt{2}$, the bases have lengths of $2\sqrt{5}$ and $3\sqrt{10}$, and half the height is $8\sqrt{5}$. Find the area.

(A) $40+60\sqrt{2}$ **(B)** $80+120\sqrt{2}$ **(C)** $16\sqrt{5}+120\sqrt{2}$ **(D)** $80+48\sqrt{5}$ **(E)** $160+240\sqrt{2}$

22. The average of $-6a^6b^9$, $-12a^9b^6$, and *c* is $-8a^6b^9-4a^9b^6$. Find the value of *c*.

(A) $-30a^6b^9$ **(B)** $-24a^6b^9$ **(C)** $-18a^6b^9$ **(D)** $-12a^6b^9$ **(E)** $-6a^6b^9$

23. Given $(a+b+c)^3-8(a+b+c)^2+12(a+b+c)=0$. Find the value of $a+b$. Assume $a+b+c\neq 6$ or 0.

(A) $2-c$ **(B)** $2+c$ **(C)** $-2-c$ **(D)** $-2+c$ **(E)** $-6-c$

24. You studied for 20 minutes for a quiz and got 16 correct. How many questions would you get correct if you studied for 30 minutes? Assume the amount of time studying is directly proportional to the number of questions that you get correct.

(A) 18 **(B)** 20 **(C)** 22 **(D)** 24 **(E)** 25

25. For $y=\sqrt{3}x^2+6\sqrt{15}x-\sqrt[3]{17}+\sqrt[4]{29}$, which equation is the axis of symmetry?

(A) $x=-3\sqrt{5}$ **(B)** $x=-5\sqrt{3}$ **(C)** $x=5\sqrt{3}$ **(D)** $x=3\sqrt{5}$ **(E)** $x=\sqrt{3}\sqrt{5}-\sqrt[3]{17}+\sqrt[4]{29}$

ALGEBRA 1 TEST 4 ANSWERS

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

1. $14 \cdot -\frac{7}{2} = -49$
2. $\frac{3}{x-2} = \pm 4 \rightarrow x = \frac{11}{4}$
3. $a+b=3 \rightarrow \frac{1}{a+b} = \frac{1}{3}$
4. $256\pi = \pi r^2 \cdot 4 \rightarrow r = 8$
5. $90 - 17.9 = 72.1$
6. $10x = 360 \rightarrow x = 36$
7. $20x^6 + 3x^4 + 10x^3$
8. $n-6 = 3(2n+6) \rightarrow n = -\frac{24}{5}$
9. $30x^3 - 22x^2 + 4x - 2$
10. $2\frac{9}{17} - 4 = -1\frac{8}{17}$
11. 3 real
12. $-30 - 20 = -52$
13. $-\frac{3}{4} = -1 - 2y \rightarrow y = -\frac{1}{8}$
14. $40 - 64 = -24$
15. $\frac{24}{25} = 96\%$
16. $x = -3\left(y - \frac{5}{6}\right)^2 + \frac{73}{36}$
17. $y + \frac{7}{4}x = 24 \rightarrow \frac{2}{3}\left(y + \frac{7}{4}x\right) = 16$
18. $y + \frac{3}{5}x = 1000 \rightarrow y + \frac{3}{5}x - 8000 = -7000$
19. $\frac{c+240}{12-5} = -50 \rightarrow c = -590$
20. $\frac{f \pm \sqrt{f^2 - 4dg}}{-2d}$
21. $8\sqrt{5}\left(2\sqrt{5} + 3\sqrt{10}\right) = 80 + 120\sqrt{2}$
22. $c = -18a^6b^9$
23. $x(x-2)(x-6) = 0 \rightarrow a+b+c = 2 \rightarrow a+b = 2-c$
24. $\frac{20}{16} = \frac{30}{x} \rightarrow x = 24$
25. $y = \sqrt{3}\left(x + 3\sqrt{5}\right)^2 \ldots \rightarrow x = -3\sqrt{5}$