ADVANCED MATH PRACTICE TEST 3

Name_____ **Date**_____

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

1. If you bought *c* stamps with *d* dollars, how many cents was each stamp?

(A) $\frac{d}{c}$ **(B)** $\frac{100d}{c}$ **(C)** $\frac{100c}{d}$ **(D)** $\frac{c}{d}$ **(E)** $\frac{c}{100d}$

2. You have *m* dollars made up of nickels and dimes. If there are *y* more nickels than dimes, which two equations would best represent this problem? Let *n* represent the number of nickels and *d* represent the number of dimes.

(A) $\begin{cases} n = d + y \\ 5n + 10d = 100m \end{cases}$ **(B)** $\begin{cases} n = d + y \\ 5n + 10d = m \end{cases}$ **(C)** $\begin{cases} n + d = y \\ 5n + 10d = 100m \end{cases}$ **(D)** $\begin{cases} d = n + y \\ 5n + 10d = 100m \end{cases}$ **(E)** $\begin{cases} d = n + y \\ 5n + 10d = m \end{cases}$

3. $\frac{2}{a+b} - \frac{2}{b} =$

(A) $\frac{2}{a}$ **(B)** $\frac{-a}{a+b}$ **(C)** $\frac{a}{a+b}$ **(D)** $\frac{-2a}{ab+b^2}$ **(E)** $\frac{4b-2a}{ab+b^2}$

4. If $x-4$ is a multiple of 13, which of the following is also a multiple of 13?

(A) $x+13$ **(B)** $x-13$ **(C)** $x+22$ **(D)** $x-26$ **(E)** $x+8$

5. Which of the following is $\sqrt{\frac{1}{x}} + \sqrt{\frac{1}{x}}$ equivalent to?

(A) $\frac{1}{\sqrt{x}}$ **(B)** $\frac{2}{\sqrt{x}}$ **(C)** $\frac{1}{2\sqrt{x}}$ **(D)** $\frac{1}{x}$ **(E)** $\frac{2}{x}$

6. Which of the following points is a member of the solution set for the following system?

$$\begin{cases} -3y - 2x > -6 \\ x \le -2 \end{cases}$$

(A) $(-3,4)$ **(B)** $(-6,7)$ **(C)** $(-9,8)$ **(D)** $(0,2)$ **(E)** $(-12,9)$

7. If the smallest of three consecutive odd integers is $\frac{g-3}{5}$, which of the following is equivalent to the largest of the three consecutive odd integers?

(A) $\frac{g+1}{5}$ **(B)** $\frac{g+7}{5}$ **(C)** $\frac{g+12}{5}$ **(D)** $\frac{g+17}{5}$ **(E)** $\frac{g+22}{5}$

8. Which of the following is not a function?

I. $\{(0,1),(1,2)(2,2)\}$ II. $x^2 = y$ III. $x = 0$

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

9. Find the distance between $(-r, t-5)$ and $(-r, 2t+5)$ assuming $2t+5 > t-5$.

(A) 0 **(B)** t **(C)** $t+10$ **(D)** $3t$ **(E)** $3t+10$

10. Find the midpoint of $(-7c, 8d)$ and $(-23c, -18d)$.

(A) $(-15c, -5d)$ **(B)** $(-8c, -5d)$ **(C)** $(-15c, 13d)$ **(D)** $(-8c, 13d)$ **(E)** $\sqrt{(-16c)^2 + (-26d)^2}$

11. Simplify $\frac{6\left(\sqrt{5}\right)^3 - 12\left(\sqrt{5}\right)^5}{6\left(\sqrt{5}\right)^3}$

(A) $-12\left(\sqrt{5}\right)^5$ **(B)** $1 - 12\left(\sqrt{5}\right)^5$ **(C)** $1 - 6\left(\sqrt{5}\right)^2$ **(D)** $-11\left(\sqrt{5}\right)^5$ **(E)** -9

12. Which is the largest number?

(A) $3\sqrt{5}$ **(B)** $5\sqrt{2}$ **(C)** $4\sqrt{3}$ **(D)** $2\sqrt{11}$ **(E)** 7

13. When $2t^4 - 1$ is divided by $t+2$, what is the remainder?

(A) $\frac{-33}{t+2}$ **(B)** $\frac{-31}{t+2}$ **(C)** $\frac{-29}{t+2}$ **(D)** $\frac{29}{t+2}$ **(E)** $\frac{31}{t+2}$

14. If $c + d + 1 = 0$ and $(a+b)(c+d)^3 - 9(c+d) + 4 = 0$, find the value of $a+b$?

(A) -5 **(B)** 5 **(C)** -13 **(D)** 13 **(E)** $\frac{13}{3}$

15. If $h = g^{-2}j^3$ and $k = g^5h^4j^2$, then $k =$

(A) $g^{-3}j^{14}$ **(B)** $g^{-3}j^{15}$ **(C)** $g^{-1}j^{14}$ **(D)** $g^{21}j^{14}$ **(E)** $g^{21}j^{83}$

16. If $\frac{w^4v^5}{u^3} > 0$, which of the following does not have to be positive?

(A) $u^9v^7w^2$ **(B)** $w^6v^9u^6$ **(C)** $v^6w^8u^{12}$ **(D)** $w^6v^{11}u^{19}$ **(E)** $w^{10}v^2u^2$

17. If $p+q < r-t < w-v$, and $z < 0$, which of the following must be false?

I. $zr - zt > zp + zq$ II. $zp + zq < zw - zv$ III. $zr - zt > zw - zv$

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

18. If $(w+z)(t+v) = x+y$, then $\frac{w+z}{t+v} =$

(A) $\frac{t+v}{x+y}$ **(B)** $\frac{x+y}{t+v}$ **(C)** $\left(\frac{t+v}{x+y}\right)^2$ **(D)** $\frac{(x+y)^2}{t+v}$ **(E)** $\frac{x+y}{(t+v)^2}$

19. If $m+n = \frac{x^2-9}{x^3-x^2-12x}$ and $p-r = \frac{x-3}{x^3+4x^2}$, find the value of $\frac{m+n}{p-r}$.

(A) $\frac{x(x+4)}{x-4}$ **(B)** $\frac{x^2(x+4)}{x-4}$ **(C)** $\frac{x(x+4)(x+3)}{x-3}$ **(D)** $\frac{x(x+4)(x-3)}{x+3}$ **(E)** x

20. $\left(x^{y-3}\right)^{y+3} =$

(A) x^{2y} **(B)** x^6 **(C)** x^{y-9} **(D)** x^{y^2-6y-9} **(E)** x^{y^2-9}

21. Solving the following system for x by substitution would yield which equation in the process?

$$\begin{cases} 3x-2y=4 \\ 4x-y=7 \end{cases}$$

(A) $3x+8x+14=4$ **(B)** $3x+8x-14=4$ **(C)** $3x-8x-9=4$ **(D)** $3x-8x-14=4$ **(E)** $3x-8x+14=4$

22. $\left(\sqrt{5\frac{3}{16}}\right)^6 \cdot \frac{1}{\left(\sqrt{6-\frac{13}{16}}\right)^2} =$

(A) 3 **(B)** $5\frac{3}{16}$ **(C)** $\left(\sqrt{5\frac{3}{16}}\right)^3$ **(D)** $\left(5\frac{3}{16}\right)^2$ **(E)** $\left(5\frac{3}{16}\right)^4$

23. Find the value of $\frac{b+c+d}{2}$ for the following system: $\begin{cases} 2b-(c+d)=10 \\ c+d=-2b-2 \end{cases}$

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

24. If the sum of three consecutive odd integers is $3+x$, what is the largest of the three integers?

(A) $3x+9$ **(B)** $\frac{x-3}{3}$ **(C)** $\frac{x+1}{3}$ **(D)** $\frac{x+6}{3}$ **(E)** $\frac{x+9}{3}$

25. $-4\left(\frac{\sqrt[3]{y+z}}{w}\right)^2 + 4\left(\frac{\sqrt[3]{y+z}}{w}\right) + 48$ is equivalent to

(A) $-4\left(\frac{\sqrt[3]{y+z}}{w}-4\right)\left(\frac{\sqrt[3]{y+z}}{w}-3\right)$ **(B)** $-4\left(\frac{\sqrt[3]{y+z}}{w}-4\right)\left(\frac{\sqrt[3]{y+z}}{w}+3\right)$ **(C)** $-4\left(\frac{\sqrt[3]{y+z}}{w}+4\right)\left(\frac{\sqrt[3]{y+z}}{w}-3\right)$

(D) $-4\left(\frac{\sqrt[3]{y+z}}{w}+4\right)\left(\frac{\sqrt[3]{y+z}}{w}+3\right)$ **(E)** $-4\left(\frac{\sqrt[3]{y+z}}{w}-6\right)\left(\frac{\sqrt[3]{y+z}}{w}+2\right)$

ADVANCED MATH TEST 3 ANSWERS

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