

Test Three: Math, No Calculator
Additional Problems

Once you have read through the test marked Test Three: Math, No Calculator and understand the solutions, complete the following practice test to reinforce what you have just learned. Good luck!

Question 1

John is painting his Mother's house. John paints n walls, each of length l , and width w , and g represents the quality price of the paint John uses. So, the amount of paint John uses is represented by the equation $p = nlwg$. If John's mother asks John to do a second coat, what variable will double?

- A) n
- B) l
- C) w
- D) g

Question 2

If $3k + 7 = 25$, what is the value of $k^2 - k$?

- A) 3
- B) 42
- C) 30
- D) 49

Question 3

Which of the following is equal to $\sqrt[7]{5^3}$

- A) $5^{7/3}$
- B) 5^{21}
- C) $25^{1/7}$
- D) $5^{\frac{3}{7}}$

Question 4

Cup 1 contains 6 more than twice the pennies as cup 2. Cup 3 contains one less than half the pennies as cup 2. If cup 3 contains 4 pennies, how many pennies are in cup 1?

- A) 26
- B) 10
- C) 24
- D) 12

Question 5

If $\frac{6}{x} = \frac{7}{2+x}$ what is $\frac{72}{x}$?

- A) 12
- B) 7
- C) 14
- D) 6

Question 6

$$4x - 3y = 10$$
$$x + y = 4$$

If (x, y) is a solution to the above equation, what is $2x - y$?

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

Question 7

x	f(x)
5	-2
6	0
4	-4
7	2
9	6

The function f is defined by a polynomial. Some values of x and $f(x)$ are displayed above. Which of the following is a factor of $f(x)$?

- A) $x - 5$
- B) $x - 9$
- C) $x - 6$
- D) $x + 4$

Question 8

The line $y = Kx - 7$ is graphed in the xy plane. If the line contains the point (g,l) , where neither g or l is equal to zero, what is the slope of the line in terms of g and l ?

- A) $\frac{g+l}{2}$
- B) $\frac{g-l}{7}$
- C) $\frac{l+4}{g}$
- D) $\frac{l+7}{g}$

Question 9

$$\begin{aligned} ZX + 2Y &= 3 \\ 6Y + 4X &= 5 \end{aligned}$$

In the system of equations above, Z is a constant and X and Y are variables. For what value of Z will the system have no solution?

- A) $5/6$
- B) $4/3$
- C) $-4/3$
- D) $-8/5$

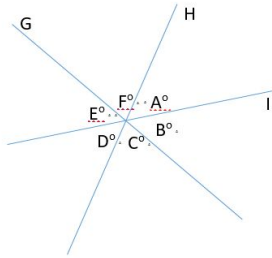
Written by Maria Shaia

Question 10

In the xy -plane, the parabola equation $Y=(X+6)^2$ intersects with the line $y=49$ at two points, A and B. What is the length of line segment AB?

- A) 1
- B) 13
- C) 14
- D) 16

Written by Maria Shaia

Question 11

Note: Figure not drawn to scale.

In the above figure, line G, H, and I intersect at a point. If $E + F = C + D$, which of the following must be true?

- I. $F = C$
 - II. $E = A$
 - III. $F = D$
- A) I and II only
 - B) I and III only
 - C) II and III only
 - D) I, II, and III

Written by Maria Shaia

Question 12

$$Y = a(x+6)(x-3)$$

In the quadratic equation above, a represents a nonzero constant. The vertex of this parabola is (b, c) . Which of the following represents c ?

- A) $3.0a$
- B) $-1.5a$
- C) $1.5a$
- D) $-3.0a$

Written by Maria Shaia

Question 13

Solve for a :

$$\frac{3x^2 + 24x - 94}{ax - 2} = \frac{(-8x - 3) - 100}{ax - 2}$$

- A) 4
- B) 8
- C) -4
- D) 2

Question 14

What are the solutions for $2x^2 + 12x - 54 = 0$?

- A) $x=4, x=-5$
- B) $x=9, x=3$
- C) $x=-9, x=3$
- D) $x=6, x=2$

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Question 15

$$C = \frac{5}{9}(F - 32)$$

The above equation shows how temperature F, measured in degrees Fahrenheit, relates to a temperature C, measured in degrees Celsius. Based on the equation, which of the following must be true?

1. $(9C/5) + 32 = F$
2. Increasing F by one degree causes C to increase by $5/9$ of a degree
3. 20 degrees Fahrenheit is equal to $-20/9$ degrees Celsius

- A) I only
- B) III only
- C) I and II only
- D) II and III only

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Question 16

$$x^3(x^2 - 5) = -6x$$

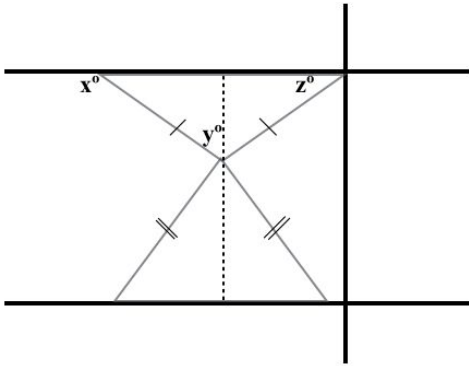
What is one possible solution to the above equation?

Written by Maria Shaia

Question 17

If $1 + \frac{2}{3x} + \frac{8}{3x} = \frac{17}{8} - \frac{1}{8}$, what is the value of x?

Written by Nicole D'Onofrio

Question 18

The figure above is not drawn to scale. Two isosceles triangles are shown above. If $180 - x = 3y - 2$ and $y = 23$, what is the value of z ?

Written by Nicole D'Onofrio

Question 19

At a performance center, a student ticket costs \$10. An adult ticket costs 4 times the price of a senior ticket and a senior ticket is half the price of a student ticket. What is the total price of 2 senior tickets and 1 adult ticket?

Written by Nicole D'Onofrio

Question 20

In triangle ABC, the measure of $\angle B$ is 90 degrees. $BC = 6$ and $AC = 8$. Triangle DEF is similar to triangle ABC. Vertices D, E, and F, correspond to vertices A, B, and C respectively. Each side of triangle DEF is $\frac{1}{2}$ the length of the corresponding side of triangle ABC. What is the value of $\sin D$?

Written by Maria Shaia

Great work! Click on the "Additional Problems Key" to score your test. Then redo the problems that you scored incorrectly.