REDESIGNED SAT Practice Material

Written by Montclair High School Math Teacher Ryan Casazza

Strategy: Plug in a Number

***All answers are at the end of this document.**

1) If $x<0$ and $y>0$, then in which quadrant is the point $(-x,-y)$?

A) *I*
B) *II*
C) *III*
D) *IV*

2) Gormlaith, Gertrudis, and Nuni each buy a piece of furniture for their apartment. Gormlaith's purchase was x dollars, Gertrudis' was $15 more than Gormlaith's, and Nuni's was $24 less than Gormlaith's. They decided to share the total expenses of the furniture evenly. Which of the following expressions represents the amount, in dollars, each of them would pay?

A) $x-3$
B) $3x-9$
C) $\frac{x-9}{3}$
D) $\frac{x}{3}-3$

3) Delia can currently run a mile in 8 ½ minutes. She plans to train hard and run a mile 10 seconds faster every month. Which of the following expressions can be used to find her mile time in *t* months?

A) $8.5+10t$
B) $8.5-10t$
C) $8.5+\frac{t}{6}$
D) $8.5-\frac{t}{6}$

4) If $p = 10r$ then what is the value of $\frac{2p}{3r}$?

A) $\frac{2}{30}$

B) $\frac{20}{3}$

C) $\frac{10}{3}$

D) $\frac{3}{10}$

5) Assume $-1 < x < 1$ and $y = x^3$. Which of the statements must be true?

I. $|y| < x$

II. $|x| > y$

III. $|xy| = xy$

A) *I only*

B) *II only*

C) *II and III only*

D) *I and III only*

6) The number of people who visited a particular beach in August is one-third the number of people who visited the beach in July. If x people visited the beach in August, then which of the following is an expression for the total number of people who visited the beach in July and August?

A) $4x$

B) $\frac{4}{3}x$

C) $\frac{2}{3}x$

D) $\frac{x+4}{3}$

7) A lumber company charges $\$15.99$ per yard of a type of wood. Which of the following equations represents the total cost—C—of x inches of this type of wood? (12 inches = 1 foot; 3 feet = 1 yard)

A) $C = (15.99x)(36)$

B) $C = \dfrac{15.99x}{36}$

C) $C = 15.99 + 36x$

D) $C = 15.99 + \dfrac{36}{x}$

8) If the value of c in the formula $K = \dfrac{a-b}{c}$ is decreased by 70%, then what happens to the value of K?

A) It decreases by 70%
B) It increases by 30%
C) It increases by 267%
D) It increases by 333%

9) Which of the following functions is always decreasing for each increasing value of x?

A) $y = -2$

B) $y = -2x$

C) $y = -2|x|$

D) $y = -x^2$

10) On planet Nuni the temperature, P, based upon the humidity level, x, can be expressed by the following formula: $P = 0.6(x - 5)$. Based on the equation, which of the following MUST be true?

I. A humidity level increase of 1 is equivalent to a temperature increase of 0.6
II. A temperature increase of 1 is equivalent to a humidity level increase of 0.6
III. A temperature increase of 6 is equivalent to a humidity level increase of 10

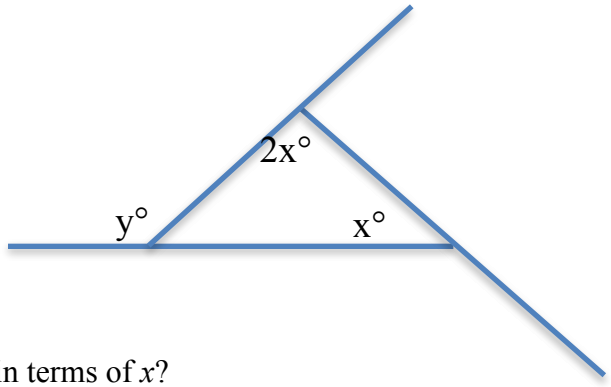
A) *I only*
B) *II only*
C) *I and III only*
D) *II and III only*

11) Nuni and Gormflath each construct a triangle. Gormflath's triangle has base that is 20% less than Nuni's triangle's base, and has height that is x % larger than Nuni's. If the area of Gormflath's triangle is 20% more than Nuni's, then what is the value of x?

A) 20
B) $33\frac{1}{3}$
C) 50
D) $66\frac{2}{3}$

12) Domby is d years old. Deepoy is half of Domby's age. Which of the following expressions represents Deepoy's age in 6 years?

A) $\frac{d-6}{2}$
B) $\frac{d+6}{2}$
C) $\frac{d}{2}-6$
D) $\frac{d}{2}+6$



13) What is the value of y in terms of x?

A) $y = 3x$
B) $y = 180 + 3x$
C) $y = 180(2 - x)$
D) $y = 3(60 - x)$

14) The distance an object travels is the product of the time it travels and the its rate of travel. A person runs a race of distance D at rate r for a time of t minutes. If the person increases his rate by 100% for the same distance traveled, then by what percent does his time decrease? Ignore the percent symbol when gridding your answer. (For example: 25% should be gridded at 25)

15) A regular pentagon has side length of x. If each side length is tripled, then which of the following represents the perimeter of the new pentagon in terms of x?

A) $5(x+3)$
B) $3x+5$
C) $5(3x)$
D) $5+(3x)$

16) A teacher designs a test in which $\frac{2}{3}$ of the questions are multiple-choice and the rest are open-ended. If he currently has *x* open-ended questions on the test, how many multiple-choice questions must he have--in terms of x?

A) $\frac{x}{2}$

B) $\frac{2x}{3}$

C) $\frac{3x}{2}$

D) $2x$

17) Gormlaith went to a furniture store to buy a new sofa set. The store advertised that all items would be discounted 15% from its original price. The amount she paid the cashier was *p* dollars, which included a $20 off coupon and a 7% sales tax on the final price after all discounts. Which of the following represents the original price of the sofa set in terms of *p*?

A) $\frac{p+(1.07)(20)}{(1.07)(0.85)}$

B) $\frac{p}{1.07}+\frac{20}{0.85}$

C) $\frac{1.07p}{0.85}-20$

D) $\frac{p+(0.15)(20)}{1.07}$

18) An item in a store costs $100. The price is decreased by *p*%; two months later the new price is increased by *p*%. Which of the following represents the new price, in terms of *p*?

A) $100p$

B) $100-\frac{p}{100}+\frac{p}{100}$

C) $100+\frac{p^2}{100}$

D) $100-\frac{p^2}{100}$

19) If $-1 < x < 0$, which of the following has the greatest value?

A) $x^2 + x$

B) $\frac{1}{x+1}$

C) $1 + 10x$

D) x^4

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20) If x is the average (arithmetic mean) of $2a$ and 7, and y is the average (arithmetic mean) of $5a$ and 3, then what is the average of x and y in terms of *a*?

A) $\frac{7a+10}{2}$

B) $\frac{7a+10}{4}$

C) $\frac{3a+4}{2}$

D) $\frac{3a+4}{4}$

21) If $x > 0$, what is the value of $2^{\frac{x}{2}} + 2^{\frac{x}{2}}$

A) 2^x

B) $2^{\frac{x}{4}}$

C) $4^{\frac{x}{2}}$

D) $2^{\frac{x}{2}+1}$

ANSWER KEY:
1. D
2. A
3. D
4. B
5. C
6. A
7. B
8. C
9. B
10. C
11. C
12. D
13. A
14. 50
15. C
16. D
17. A
18. D
19. B
20. B
21. D