SAT Prep

Algebra 1

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CONCEPTS

QUESTIONS

1. Fred gives $1/3$ of his DVDs to Andy and then gives $3/4$ of the remaining to Jerry. Fred now has what fraction of the original number of DVDs?

   A. 1/12

   B. 1/6

   C. 1/4

   D. 1/3

QUESTIONS

2. If p and q are integers such that $6 < q < 17$ and $\frac{p}{q} = \frac{3}{4}$, how many possible values are there for p?

A. 2

B. 3

C. 4

D. 5

QUESTIONS

3. Every 8 days a mass of a certain radioactive substance decreases to exactly one-half of its value at the beginning of the 8-day period. If the initial amount of the radioactive substance is 75 grams, which equation gives the number of grams in the mass, M, that remains after d days?

A. $M = 75\left(\frac{d}{16}\right)$

B. $M = 75\left(\frac{8}{d}\right)^2$

C. $M = 75\left(\frac{1}{2}\right)^{8d}$

D. $M = 75\left(\frac{1}{2}\right)^{d/8}$

QUESTIONS

4. If t ties cost d dollars, how many dollars would t + 1 ties cost?

   A. d + 1

   B. $\frac{dt}{t+1}$

   C. $\frac{d+t}{t+1}$

   D. $\frac{d(t+1)}{t}$

QUESTIONS

5. If $x + y = 4$ and $x – y = 2$, then what is xy?

QUESTIONS

6. If $6x = 36$. And $xk = 42$, then what is the value of k?

   A. 4

   B. 5

   C. 7

   D. 10

QUESTIONS

7. If $\frac{x+y}{x} = 5$, then what is the value of $\frac{x}{y}$?

A. 4

B. $\frac{1}{4}$

C. 5

D. $\frac{1}{3}$

QUESTIONS

8. A dental hygiene company is creating a new 24-ounce tube of toothpaste by combining its most popular kinds of toothpaste, Cavity Crusher, and Bad Breath Obliterator. Cavity Crusher contains 0.25% sodium fluoride as its active ingredient, and Bad Breath Obliterator contains 0.30% triclosan as its active ingredient for a total of 0.069 ounces of active ingredients in both toothpastes. Solving which of the following systems of equations yields the number of ounces of Cavity Crusher, c, and the number of ounces of Bad Breath Obliterator, b, that are in the new toothpaste?

A. $c + b = 0.069$

$0.25c + 0.3b = 24$

B. $c + b = 24$

$0.0025c + 0.003b = 0.069$

C. $c + b = 24$

$0.025c + 0.03b = 0.069$

D. $c + b = 24$

$0.25c + 0.3b = 0.069$

QUESTIONS

9. If b is two more than one-third of c, which of the following expresses the value of c in terms of b?

A. $c = \frac{b - 2}{3}$

B. $c = \frac{b + 2}{3}$

C. $c = 3(b - 2)$

D. $c = 3(b - 6)$

QUESTIONS

10. The Glenville PTA is sponsoring a bake sale that sells cookies and brownies. Each cookie costs $1.50, and each brownie costs $2.25. The PTA's goals for the day are to sell at least 55 items and to bring in at least $100 of revenue. Let x be the number of cookies sold, and y be the number of brownies sold. Which of the following systems of inequalities represents the PTA's goals?

A. $x + y \leq 100$

$1.5x + 2.25y \leq 55$

B. $x + y \geq 100$

$1.5x + 2.25y \geq 55$

C. $x + y \geq 55$

$1.5x + 2.25y \leq 100$

D. $x + y \geq 55$

$1.5x + 2.25y \geq 100$

QUESTIONS

11. The Municipal Electric Company charges each household $0.15 per kilowatt-hour of electricity plus a flat monthly service fee of $16. If a household uses 30 kilowatt-hours of electricity and is charged $P in a given month, which of the following equations is true?

A. $0.15(30) + 16 = P$

B. $0.15P + 16 = 30$

C. $\frac{30}{0.15} + 16 = P$

D. $\frac{0.15}{P} + 16 = 30$

QUESTIONS

12. $3x + y = 3y + 4$
$x + 4y = 6$

Based on the system of equations above, what is the value of xy?

QUESTIONS

13. The net profit for the sales of a product is equal to the total revenue from the sales of that product minus the total cost for the sales of that product. If a particular model of calculator sells for $98, and the cost for making and selling “n” of these calculators is $(35n + 120,000), which of the following equations expresses the net profit in dollars, P, for making and selling n of these calculators?

A. $P = 63n – 120,000$

B. $P = 63n + 120,000$

C. $P = 63(n – 120,000)$

D. $P = 63(n + 120,000)$

QUESTIONS

14. If $y = 3x + 4$ and $x < 3$, which of the following represents all the possible values of y?

A. $y > 7$

B. $y < 13$

C. $7 < y < 13$

D. $y > 13$

QUESTIONS

15. If $\frac{3}{b} - \frac{2}{5} = 1$, what is the value of b?

A. $\frac{5}{7}$

B. $\frac{6}{5}$

C. $\frac{15}{7}$

D. 5

SAT

QUESTIONS

16. If the sum of a, b, and c is three times the sum of a and b, which of the following expresses the value of a in terms of b and c?

A. $\frac{c - 2b}{2}$

B. $\frac{2b - c}{2}$

C. $\frac{c - 3b}{3}$

D. $\frac{3b - c}{3}$

QUESTIONS

17. In a poker game, a blue chip is worth 2 dollars more than a red chip, and a red chip is worth 2 dollars more than a green chip. If 5 green chips are worth "*m*" dollars, then which of the following represents the value, in dollars, of 10 blue chips and 5 red chips?

A. 50 + 3m

B. 18 + 60m

C. 40 + 3m

D. 28 + 20m

QUESTIONS

18. If $\frac{3x}{m - nx} = 2$ for all positive values of m and n, then which of the following is equal to x?

A. $\frac{2m - 2n}{3}$

B. $\frac{2m - 3}{2n}$

C. $\frac{3 + 2n}{2m}$

D. $\frac{2m}{3 + 2n}$

QUESTIONS

19. If $\frac{a+b}{b} = 3$ and $\frac{a+c}{c} = 5$, what is the value of $\frac{b}{c}$?

QUESTIONS

20. Jeanne babysits Chuy one day each week. Jeanne charges a $20 fee for the day, plus $5.50 for every 30 minutes of babysitting. How much has Jeanne earned in $ after three hours of babysitting?

QUESTIONS

21. How many quarts of grape juice worth $1.20 a quart should be mixed with 3 quarts of apple juice worth 90 cents quart to produce a punch worth $1.00 a quart?

QUESTIONS

22. Tickets to a concert cost $15 for the balcony and $20 for an orchestra seat. If 540 tickets were sold for a total price of $9,750. How many balcony tickets were sold?

QUESTIONS

23. How many pounds of cashews valued at $2.00 per pound must be mixed with 30 pounds of peanuts valued at 80 cents per pound to produce a mixture worth $1.25 per pound?

QUESTIONS

24. Brad is 12 years older than Sam. If Brad were 8 years older than he is now, he would be twice as old as Sam. How old is Sam now?

QUESTIONS

25. The length of a rectangle is three feet less than twice its width. If x represents the width of the rectangle, in feet, which inequality represents the area of the rectangle that is at most 30 square feet?

A. $x(2x - 3) \leq 30$

B. $x(2x - 3) \geq 30$

C. $x(3 - 2x) \leq 30$

D. $x(3 -2x) \geq 30$

QUESTIONS

26.If $x = y + \frac{1}{2}(v + w)t$, what is v?

A. $\frac{2(x-y)}{wt}$

B. $\frac{2(x-y)}{t} - w$

C. $\frac{t(x-y)}{2w}$

D. $wt - \frac{2(x-y)}{t}$

Thank you