

①

SAT Prep Packet 1

If  $\frac{5x}{2} + 3 = 7$ , then  $10x + 12 =$

②

What number decreased by 7 equals  
the opposite of five times the number?

③

If  $5d + 12 = 24$  then  $5d - 12 =$

④

The product of  $x$  and  $y$  is 36.  
If both  $x$  and  $y$  are integers, then  
what is the least possible value of  $x-y$ ?

- a) -37
- b) -36
- c) -35
- d) -9

⑤

⑥ The difference of two numbers is 4  
And their sum is 14. What is their  
product?

⑥

If  $3x^2 + 2x = 40$  then  $15x^2 + 10x =$

⑦

If  $2x - 2y = 5$  and  $x+ty = 6$

What is  $x^2 - y^2$ ?

⑧

If  $x$  and  $y$  are positive numbers, such that

$3x - 2y = 7$  what is the value of

$$\frac{2y+7}{6x} ?$$

(9)

A train travels at an average speed of

50 mph for the 1<sup>st</sup> 100 miles of a 200

mile trip and at an avg of 75 mph for

the first 100 miles. What is the train's avg

speed of the entire trip?

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If <sup>(10)</sup>  $x^2 = y^2$  then which MUST BE TRUE?

A)  $x = y$

C)  $|x| = |y|$

B)  $x = \frac{y^2}{x}$

D)  $x^3 = y^3$

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(11) If they are 1 lines  
 $2x - 3ky = 12$       what is the value of  $kp$ ?  
 $4x + 2py = 20$

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(12) If points  $(2, 4)$ ,  $(5, k)$ , and  $(8, 20)$  are on the same line, what is the value of  $k$ ?

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If  $f(-1) = 1$  and  $f(3) = 2$  and  $f$  is a linear function what is  $f(5)$ ?

(14)

What positive number is twice as far from 10 as it is from 1?

(15)

If points  $(2, a)$  and  $(14, b)$  are 20 units apart, what is  $|a - b|$ ?

(16)

What is the only integer  $b$  for which

$$\frac{1}{b} > \frac{3}{11} \text{ and } 3b \geq 7.5 ?$$

(17)

The average of four numbers is 15. If one of the numbers is 18, what is the average of the remaining 3 numbers?

(18)

$$\text{If } x^2 \cdot 8^2 = 7^2 \cdot 8^2 \cdot 9^2$$

$$\text{Then } x^2 =$$

- a)  $49^2$
- b)  $54^2$
- c)  $63^2$
- d)  $81^2$

(20) If  $\frac{3a+b}{b} = \frac{7}{5}$  what is  $\frac{a}{b}$ ?

(21) If  $x - 2y = 10$  and  $x \neq 0$  what is the value of  $\frac{2x}{4+5}$ ?

(22) If the function  $\{x\}$  is defined by the equation  $\{x\} = (1-x)^2$  what is the value of  $\{\{4\}\}$ ?

(23) If  $\frac{a+b}{b} = 3$  and  $\frac{a+c}{c} = 5$  what is  $\frac{b}{c}$ ?

(24) If  $\frac{2}{3}$  of the seats at a stadium were filled at the beginning of a game, and at half-time 1000 spectators left, leaving  $\frac{3}{7}$  seats filled, what is the total # of seats in the stadium?

(25)

Increasing a positive number by 25% then decreasing this by 50% is equivalent to dividing the number by

- A) 1.33
- B) 1.50
- C) 1.60
- D) 1.65

(26)

$$\frac{m^2 - n^2}{2m - 2n} = \frac{9}{2} \quad \text{What is } m+n?$$

(27) If the equation  $y = \frac{9x^2 + 12x + 4}{6x + 4}$  is graphed in the  $x$ - $y$  plane, the graph is a line. What is the slope of the line?

(28) If  $x^2 + 4x + 5 = y$  and  $z = x + 2$  which expresses  $y$  in terms of  $z$ ?

- A)  $y = z^2 + 1$
- B)  $y = z(z+3)$
- C)  $y = z^2 + 5$
- D)  $y = (z+2)^2 + 1$

29) Last year Julie's annual salary was \$20,000. This year's raise brings the annual salary to \$25,000. If she gets a raise of the same percentage every year, what will her salary be next year?

30) If  $a * b = \sqrt{ab}$  for all non-negative numbers, what is the value of  $10 * 6$ ?  
a) 0   b) 2   c) 4   d) 8   e) 16

31) Jackie purchased a new car in 1990. Three years later she sold it to a dealer for 40 percent less than she had paid for it in 1990. The dealer then added 20 percent onto the price he paid and resold it to another customer. The price the final customer paid for the car was what percent of the original price Jackie paid for the car in 1990?

- a) 40%   b) 60%   c) 72%   d) 80%   e) 88%

32) If the ratio of quarters to dimes is 5 to 2 and the ratio of dimes to nickels is 3 to 4 what is the ratio of quarters to nickels?

33) A car travelled from A to B at an average rate of 40 mph and then travelled back from B to A at 60 mph. What was the car's average speed for the round trip?

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34) The tickets for a certain raffle are consecutively numbered. If Louis sold tickets numbered 75 to 148 inclusive, how many raffle tickets did he sell?

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35) Two classes, one with 50 students and the other with 30, take the same exam. The combined average of both classes is 84.5. If the larger class averages 80, what is the average of the smaller class?

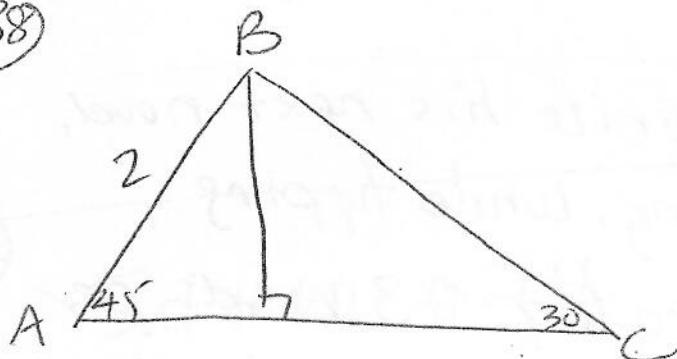
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36) The ratio of men to women in a certain room is 13:11. If there are 429 men in the room, how many women are there?  
a) 143 b) 363 c) 433 d) 507 e) 792

(37) A number is increased by 30%, then decreased by 20%. What is the final result of these changes?

- a) increased by 10%
- b) increased by 6%
- c) increased by 4%
- d) decreased by 5%
- e) decreased by 10%

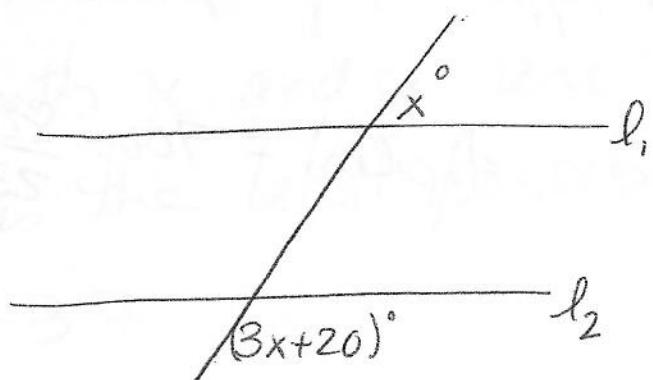
(38)



What is the length of BC?

- a)  $\sqrt{2}$
- b) 2
- c)  $2\sqrt{2}$
- d) 4
- e)  $4\sqrt{2}$

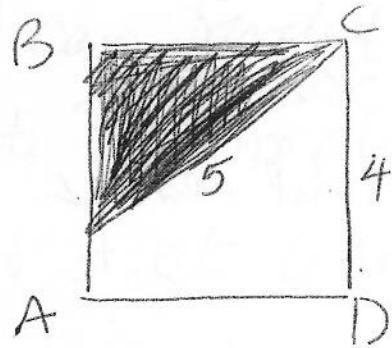
(39)



$l_1 \parallel l_2$  what is the value of  $x$ ?

- a) 130
- b) 100
- c) 80
- d) 50
- e) 40

(40)



In square ABCD above, what is the area of the shaded region?

- a) 10
- b) 9
- c) 8
- d) 6
- e) 4

41) Taylor is preparing to write his next novel, which will be 700 pages long. While typing, Taylor types at a constant rate of 23 words per minute. If each page contains 800 words, which of the following functions  $p$  models the number of pages Taylor has left to type after typing  $m$  minutes?

$$a) p(m) = \frac{700 - 800m}{23}$$

$$b) p(m) = \frac{700 - 23m}{800}$$

$$c) p(m) = 700 - \frac{23m}{800}$$

$$d) p(m) = 700 - \frac{800}{23m}$$