Vendor: Test Prep

Exam Code:SAT2-MATHEMATICS

Exam Name:SAT Section 2: Mathematics

Version: Demo

QUESTION 1

SIMULATION

There are 750 students in the auditorium for an assembly. When the assembly ends, the students begin to leave. If 32% of the students have left so far, how many students are still in the auditorium?

A. 510

Correct Answer: A

Explanation:

If 32% of the students have left the auditorium, then $100 - 32 = 68\%$ of the students are still in the auditorium; 68% of $750 = (0.68)(750) = 510$ students.

QUESTION 2

$p < 0, \; q > 0, \; and \; r > p$

If , then which of the following must be true?

A. $p + r > 0$

B. $r\,p < r\,q$

C. $pr < rq$

D. $r + q > q$

E. $p + r < r + q$

A. Option A

B. Option B
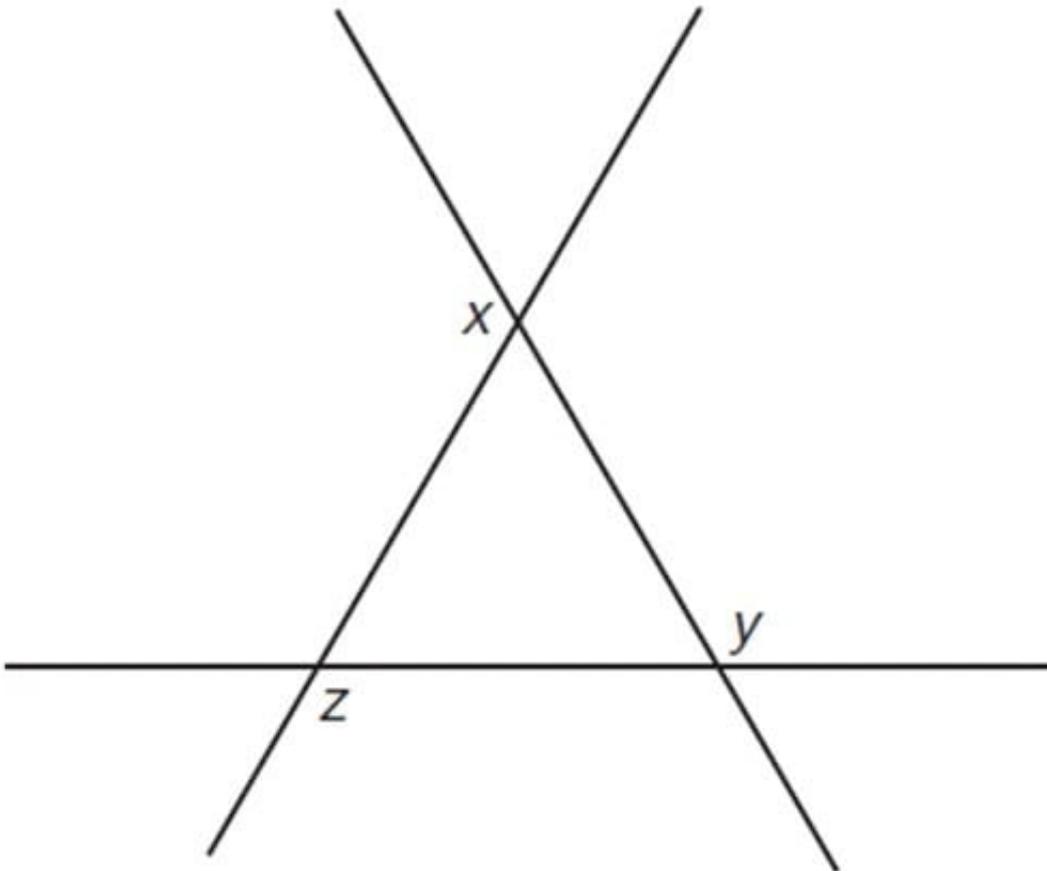
C. Option C

D. Option D

E. Option E

Correct Answer: E

$$p + r < r + q.$$

$p < 0$ *and* $q > 0$, *then* $p < q$. *Since* $p < q$, p

If plus any value will be less than that same value (whether positive or negative). Therefore,

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QUESTION 3

In the diagram above, what is the sum of the measures of the angles x, y, and z?

A. 180 degrees

B. 360 degrees

C. 540 degrees

D. 720 degrees

E. cannot be determined

Correct Answer: B

There are 180 degrees in a line: (x + (supplement of angle x)) + (y + (supplement of angle y)) + (z + (supplement of angle z)) = 540. The supplement of angle x, the supplement of angle y, and the supplement of angle z are the interior angles of a triangle. There are 180 degrees in a triangle, so those supplements sum to 180. Therefore, x + y + z + 180 = 540, and x + y + z = 360.

QUESTION 4

Monica sells pretzels in the cafeteria every school day for a week. She sells 14 pretzels on Monday, 12 pretzels on Tuesday, 16 pretzels on Wednesday, and 12 pretzels on Thursday. Then, she calculates the mean, median, and mode of her sales. If she sells 13 pretzels on Friday, then

A. the mode will increase.

B. the mean will stay the same.

C. the median will stay the same.

D. the median will decrease.

E. the mean will increase.

Correct Answer: C

For the first four days of the week, Monica sells 12 pretzels, 12 pretzels, 14 pretzels, and 16 pretzels. The median value is the average of the second and third values:

$$\frac{12+14}{2} = \frac{26}{2} = 13.$$

If Monica sells 13 pretzels on Friday, the median will still be 13. She will have sold 12 pretzels, 12 pretzels, 13 pretzels, 14 pretzels, and 16 pretzels. The median stays the same.

QUESTION 5
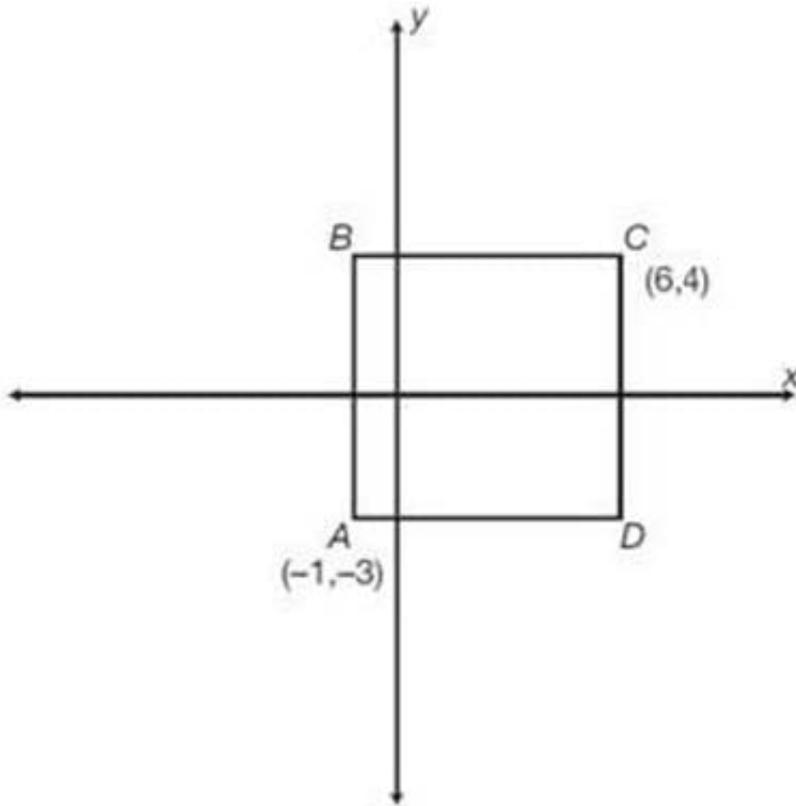
In the graph above, ABCD is a square. What are the coordinates of point B?

A. (−1,−4)

B. (−1,4)

C. (−1,6)

D. (−3,1)

E. (−3,4)

Correct Answer: B

Explanation:

Point B is the same distance from the y-axis as point A, so the x-coordinate of point B is the same as the x-coordinate of point A: −1. Point B is the same distance from the x-axis as point C, so the y-coordinate of point B is the same as the y-coordinate of point C: 4. The coordinates of point B are (−1,4).

QUESTION 6

$$\frac{5}{16} < x < \frac{9}{20},$$

A. $\dfrac{1}{3}$

B. $\dfrac{2}{5}$

C. $\dfrac{3}{8}$

D. $\dfrac{3}{7}$

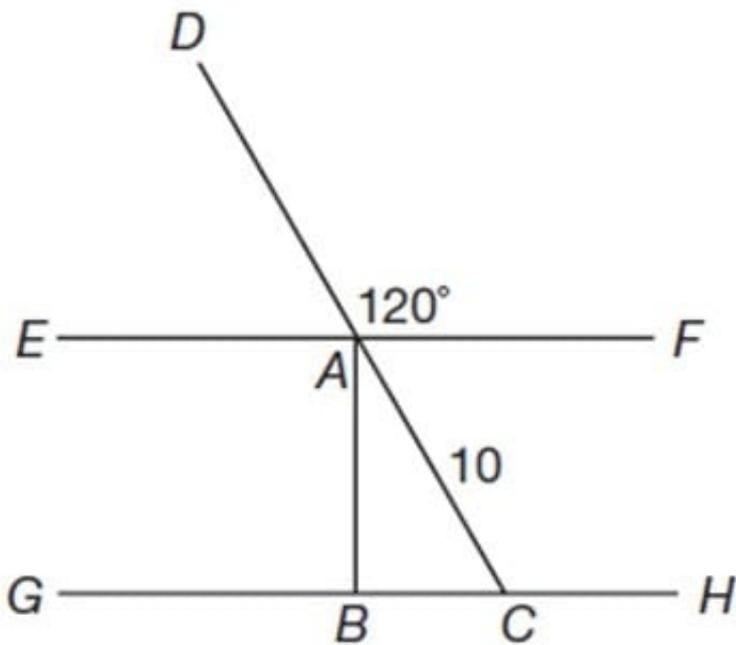E. $\dfrac{4}{9}$

If 0.34

A. Option A

B. Option B

C. Option C

D. Option D

E. Option E

Correct Answer: C

5/16= 0.3125 and 9/20= 0.45; 3/8= 0.375 which is between 0.34 and 0.40, and between 0.3125 and 0.45.

QUESTION 7

In the diagram above, lines EF and GH are parallel, and line AB is perpendicular to lines EF and GH. What is the length of line AB?

A. 5

B. 52

C. 53

D. 102

E. 103

Correct Answer: C

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Line AB is perpendicular to line BC, which makes triangle ABC a right triangle. Angles DAF and DCH are alternating angles -- angles made by a pair of parallel lines cut by a transversal. Angle DAF angle DCH, therefore, angle DCH = 120 degrees. Angles DCH and ACB form a line. There are 180 degrees in a line, so the measure of angle ACB = 180 ?120 = 60 degrees. Triangle ABC is a 30-60-90 right triangle, which means that the length of the hypotenuse, AC, is equal to twice the length of the leg opposite the 30-degree angle, BC. Therefore, the length of BC is 10/2, or 5. The length of the leg opposite the 60-degree angle, AB, is 3 times the length of the other leg, BC. Therefore, the length of AB is.

QUESTION 8

A box contains five blue pens, three black pens, and two red pens. If every time a pen is selected, it is removed from the box, what is the probability of selecting a black pen followed by a blue pen?

A. $\frac{1}{8}$

B. $\frac{1}{10}$

C. $\frac{1}{50}$

D. $\frac{3}{20}$

E. $\frac{77}{90}$

A. Option A

B. Option B

C. Option C

D. Option D

E. Option E

Correct Answer: A

At the start, there are 5 + 3 + 2 = 10 pens in the box, 3 of which are black. Therefore, the probability of selecting a black pen is 3/10 After the black pen is removed, there are nine pens remaining in the box, five of which are blue. The

$$\left(\frac{3}{10}\right)\left(\frac{5}{9}\right)=\frac{15}{90}=\frac{1}{6}$$

probability of selecting a blue pen second is 5/9 To find the probability that both events will happen, multiply the probability of the first event by the probability of the second event:

QUESTION 9

SIMULATION

If 6x + 9y – 15 = –6, what is the value of –2x – 3y + 5?

A. 2

Correct Answer: A

The first expression, 6x + 9y – 15, is –3 times the second expression, –2x – 3y + 5 (multiply each term in the second expression by –3 and you'd get the first expression). Therefore, the value of the first expression, –6, is –3 times the value of the second expression. So, you can find the value of the second expression by dividing the value of the first expression by–3: The value of is just-1/3 times the value of since itself is-1/3times 6x + 9y - 15.

$$\frac{-6}{-3} = 2$$

$$-2x - 3y + 5(2)$$

QUESTION 10

The function m # n is equal to m2 – n. Which of the following is equivalent to m#(n # m)?

A. $-n$

B. $n^2 - m$

C. $m^2 + m - n^2$

D. $(m^2 - n)^? - n$

E. $(n^2 - m)^? - m$

A. Option A

B. Option B

C. Option C

D. Option D

E. Option E

Correct Answer: C

Explanation: M#n is a function definition. The problem is saying "m#n" is the same as "m2– n". If m#n isn2– n, then n#misn2– m. So, to find m#(n#m), replace (n#m) with the value of (n#m), which isn2– m:m#(n2 – m). Now, use the function definition again. The function definition says "take the value before the # symbol, square it, and subtract the value after the # symbol": m squared ism2minus the second term, (n2– m), is equal tom2-(n2– m) = m2– n2+ m.

QUESTION 11

The number p is greater than 0, a multiple of 6, and a factor of 180. How many possibilities are there for the value of p?

A. 7

B. 8

C. 9

D. 10

E. 11

Correct Answer: B

The positive factors of 180 (the positive numbers that divide evenly into 180) are 1, 2, 3, 4, 5, 6, 9, 10, 12, 15, 18, 20, 30, 36, 45, 60, 90, and 180. Of these numbers, 8 (6, 12, 18, 30, 36, 60, 90, and 180) are multiples of 6.

QUESTION 12

Which of the following is the equation of a parabola whose vertex is at (5,–4)?

A. $y=(x-5)2-4$

B. $y=(x+5)2-4$

C. $y=(x-5)2+4$

D. $y=(x+5)2+4$

E. $y = x2 - 29$

A. Option A

B. Option B

C. Option C

D. Option D

E. Option E

Correct Answer: A

Explanation:

The equation of a parabola with its turning point five units to the right of the y-axis is written as y = (x - 5)2.

The equation of a parabola with its turning point four units below the x-axis is written as y = x2- 4.

Therefore, the equation of a parabola with its vertex at (5, 4) is y= (x - 5)2 – 4.