

# SAT2-MATHEMATICS<sup>Q&As</sup>

SAT Section 2: Mathematics

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**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**

$$p < 0, q > 0, \text{ and } r > p$$

If , then which of the following must be true?

A.  $p + r > 0$

B.  $rp < rq$

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**

Rob has six songs on his portable music player. How many different four-song orderings can Rob create?

- A. 30
- B. 60
- C. 120
- D. 360
- E. 720

Correct Answer: D

The order of the four songs is important. The orderings A, B, C, D and A, C, B, D contain the same four songs, but in different orders. Both orderings must be counted. The number of six-choose-four orderings is equal to  $(6)(5)(4)(3) = 360$ .

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**QUESTION 4**

$$y = \frac{2}{3}x - 5$$

Line is perpendicular to line

A.  $y = \frac{2}{3}x + 5$

B.  $y = 5 - \frac{2}{3}x$

C.  $y = -\frac{2}{3}x - 5$

D.  $y = \frac{3}{3}x - 5$

E.  $y = -\frac{2}{3}x + 5$

A. Option A

B. Option B

C. Option C

D. Option D

E. Option E

Correct Answer: E

Explanation:

Perpendicular lines have slopes that are negative reciprocals of each other. The slope of the line given is  $\frac{2}{1}$ .

The negative reciprocal of  $\frac{2}{1}$  is  $-\frac{1}{2}$ . Every line with a slope of  $-\frac{1}{2}$  is perpendicular to the given line;  $y = \frac{3}{2}x + 5$  is perpendicular to  $y = -\frac{1}{2}x + 5$ .

#### QUESTION 5

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

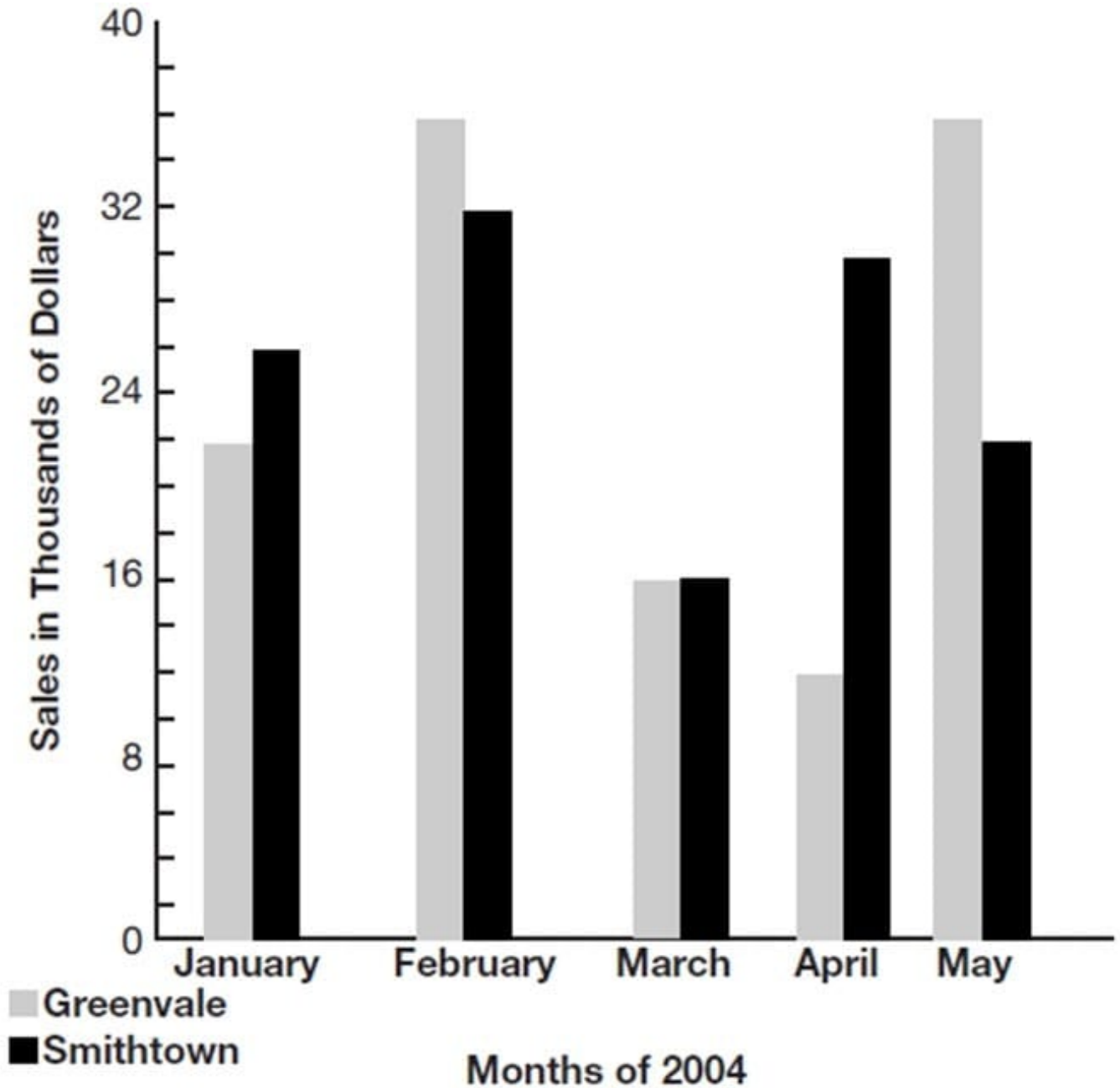
Correct Answer: B

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 6**

SIMULATION Sales of the Greenvale and Smithtown Branches of SuperBooks



The graph above shows the sales by month for the Greenvale and Smithtown branches of SuperBooks. From January through May, how much more money did the Smithtown branch gross in sales than the Greenvale branch?

A. 4000

Correct Answer: A

The Greenvale sales, represented by the light bars, for the months of January through May respectively were \$22,000, \$36,000, \$16,000, \$12,000, and \$36,000, for a total of \$122,000. The Smithtown sales, represented by the dark bars, for the months of January through May respectively were \$26,000, \$32,000, \$16,000, \$30,000, and \$22,000, for a total of \$126,000. The Smithtown branch grossed \$126,000 ?\$122,000 = \$4,000 more than the Greenvale branch.

**QUESTION 7**

SIMULATION

$$\frac{b}{4} + 3a = 11,$$

If  $2a + b = 10$  and what is the positive value of  $a$ ?

A. 3

Correct Answer: A

Solve  $2a + b = 10$  for  $b$ :  $b = 10 - 2a$ . Substitute  $(10 - 2a)$  for  $b$  in the second equation and solve for  $a$ :

$$\frac{-10 - 2a^2}{4} + 3a = 11$$

$$-10 + 2a^2 + 12a = 44$$

$$2a^2 + 12a - 54 = 0$$

$$2a - 6 = 0, \quad a = 3$$

$$a + 9 = 0, \quad a = -9$$

The positive value of  $a$  is 3

**QUESTION 8**

If  $m$

A.  $-m < -n$ .

B.  $m n > 0$ .

C.  $|m| + n > 0$ .

D.  $|n| < |m|$ .

E.  $m - n < 0$ .

A. Option A

B. Option B

C. Option C

D. Option D

E. Option E

Correct Answer: A

Explanation:

If  $m < n$