



ثانوية التكنولوجيا التطبيقية
Applied Technology High School

SAT I**2012 / 2013**

Question booklet # 8

Grade	12
Cluster	Core
Subject	Mathematics

Student Name			
Student Number		Section	

Coverage	➤ SAT I, basic reasoning questions.
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1. If $10 + x$ is 5 more than 10, what is the value of $2x$?

- (A) -5
- (B) 5
- (C) 10
- (D) 25
- (E) 50

2. If x and y are positive integers, what are all the solutions (x, y) of the equation $3x + 2y = 11$?

- (A) (1,4) only
- (B) (3,1) only
- (C) (1,4) and (2,2)
- (D) (1,4) and (3,1)
- (E) (2,2) and (3,1)

3. When 70,000 is written as 7.0×10^n , what is the value of n ?

- (A) 1
- (B) 2
- (C) 3
- (D) 4
- (E) 5

4. On a car trip Ahmed drove m miles, Omar drove twice as many miles as Ahmed, and Ali drove 20 fewer miles than Omar. In terms of m , how many miles did Ali drive?

- (A) $2m + 20$
- (B) $2m - 20$
- (C) $\frac{m}{2} + 20$
- (D) $\frac{m+20}{2}$
- (E) $\frac{m}{2} - 20$

5. If $y = 2x + 3$ and $x < 2$, which of the following represents all the possible values for y ?

- (A) $y < 7$
- (B) $y > 7$
- (C) $y < 5$
- (D) $y > 5$
- (E) $5 < y < 7$

6. For all numbers a and b , let $a \spadesuit b$ be defined by $a \spadesuit b = ab + a + b$. For all numbers x , y , and z , which of the following must be true?

I. $x \spadesuit y = y \spadesuit x$

II. $(x-1) \spadesuit (x+1) = (x \spadesuit x) - 1$

III. $x \spadesuit (y+z) = (x \spadesuit y) + (x \spadesuit z)$

- (A) I only
- (B) II only
- (C) III only
- (D) I and II only
- (E) I, II, and III

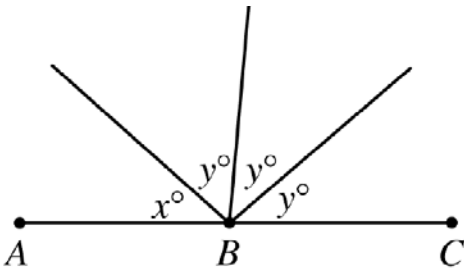
7. If $x + k = 12$ and $p(x + k) = 36$, what is the value of p ?

- (A) 3
- (B) 4
- (C) 6
- (D) 9
- (E) 12

8. If $x^2 = x + 6$, which of the following must be true?

- (A) $x = 6$
- (B) $x < 3$
- (C) $x > 0$
- (D) $x^2 < x$
- (E) $x^2 > x$

9. In the figure below, point B lies on AC .



Note: Figure not drawn to scale

If x and y are integers, which of the following is a possible value of x ?

- (A) 30
(B) 35
(C) 40
(D) 50
(E) 55

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10. If $\frac{1}{3}y + 9 = 0$, then $y =$

- (A) -27
(B) -9
(C) -3
(D) 3
(E) 27

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11. A total of 120,000 votes were cast for 2 opposing candidates, Khalid and Rashid. If Khalid won by a ratio of 5 to 3, what was the number of votes cast for Rashid?

- (A) 15,000
(B) 30,000
(C) 45,000
(D) 75,000
(E) 80,000

12. Let the function f be defined by $f(x) = 5x - 2a$, where a is a constant. If $f(10) + f(5) = 55$, what is the value of a ?

- (A) -5
(B) 0
(C) 5
(D) 10
(E) 20

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13. If n and k are positive integers and $8^n = 2^k$, what is the value of $\frac{n}{k}$?

- (A) $\frac{1}{4}$
(B) $\frac{1}{3}$
(C) $\frac{1}{2}$
(D) 3
(E) 4

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14. If 13 is added to one-half of a certain number, the result is 37. What is the original number?

- (A) 24
(B) 40
(C) 48
(D) 61
(E) 80

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15. If $(x - 2)^2 = 49$, then x could be

- (A) -9
(B) -7
(C) 2
(D) 5
(E) 9