

SAT SUBJECT PRACTICE – MATH

- Question 1: What is the closest approximation of the solution of the equation $2^{x-1} = 3^{x+1}$?
 - (a) -4.42
 - (b) -5.81
 - (c) -3.22
 - (d) 4.93
 - (e) 3.33

- Question #2: What is the range of $(x - y)$ if $3 < x < 4$ and $-2 < y < -1$?
 - (a) $4 < x-y < 5$
 - (b) $1 < x-y < 3$
 - (c) $1 < x-y < 5$
 - (d) $4 < x-y < 6$
 - (e) $3 < x-y < 6$

- Question #3: A bus travels the distance d from New York to Boston. t_1 hours after the bus left New York, a car starts to travel the same distance d from New York to Boston. Both vehicles reach Boston at the same time. Find an expression for d as a function of t_1 , the speed of the bus v_1 and the speed of the car v_2 .
 - (a) $d = v_1 t_1 / (v_2 - v_1)$
 - (b) $d = v_1 v_2 t_1 / (v_2 - v_1)$
 - (c) $d = v_1 t_1 / (v_2 + v_1)$
 - (d) $d = v_1 v_2 t_1 / (v_2 + v_1)$
 - (e) $d = v_1 v_2 t_1$

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- Question #4: Find the value of x if:

$$x + y + z = 5$$

$$x + y - z = 3$$

$$x - y = 2$$

- (a) -3
 - (b) -1
 - (c) 1
 - (d) 3
 - (e) 5
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- Question #5: A camera has a price of 300 dollars. Its price is lowered 10% and then increased 10%. What is the final selling price of the camera?
- (a) \$297
 - (b) \$303
 - (c) \$310
 - (d) \$330
 - (e) \$303
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- Question #6: The equation $2x^2 - 2x - 60 = 0$ has the following 2 solutions:
- (a) $\{-5, 5\}$
 - (b) $\{5, -6\}$
 - (c) $\{-5, -6\}$
 - (d) $\{-5, 6\}$
 - (e) $\{5, 6\}$

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- Question #7: The side of a cube is two times the radius of a sphere. What is the ratio of the volume of the cube to the volume of the sphere?

(a) $6/\sqrt{3}$

(b) $3/\sqrt{3}$

(c) $\sqrt{3}/6$

(d) $\sqrt{3}/4$

(e) $\sqrt{3}$

- Question #8: If $\tan(2x) = 2$, $\tan(x)$ is equivalent to which of the following expressions?

(a) $\sin(2x)/\cos(2x)$

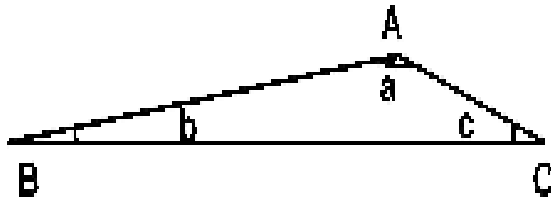
(b) $1 + \tan(x)$

(c) $1 - \tan(x)$

(d) $(1 - \tan(x))(1 + \tan(x))$

(e) $(1 - \tan(x))^2$

- Question #9: What is the closest approximation of the value of angle a in the figure below, if $AB = 7$, $BC = 11$ and $CA = 5$?



- (a) 96.4°
- (b) 100.8°
- (c) 144.9°
- (d) 132.2°
- (e) 135.9°

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- Question #10: For some positive real number 'a', the first 3 terms of a geometric progression are $a - 1$, $a + 3$ and $3a + 1$. What is the numerical value of the fourth term?
 - (a) 25
 - (b) 36
 - (c) 32
 - (d) 100
 - (e) 9

Solutions:

Question #1: a

Question #2: d

Question #3: b

Question #4: d

Question #5: a

Question #6: d

Question #7: a

Question #8: d

Question #9: d

Question #10: c