

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Geometry and Trigonometry	Area and volume	<div><div></div><div></div><div></div></div>

ID: 5252e606

The side length of a square is **55 centimeters (cm)**. What is the area, **in cm<sup>2</sup>**, of the square?

- A. 110
- B. 220
- C. 3,025
- D. 12,100

ID: 5252e606 Answer

Correct Answer: C

Rationale

Choice C is correct. The area  **$A$ , in square centimeters (cm<sup>2</sup>)**, of a square with side length  **$s$ , in cm**, is given by the formula  **$A = s^2$** . It's given that the square has a side length of **55 cm**. Substituting **55** for  **$s$**  in the formula  **$A = s^2$**  yields  **$A = 55^2$** , or  **$A = 3,025$** . Therefore, the area, **in cm<sup>2</sup>**, of the square is **3,025**.

Choice A is incorrect and may result from conceptual or calculation errors.

Choice B is incorrect. This is the perimeter, **in cm**, of the square, not its area, **in cm<sup>2</sup>**.

Choice D is incorrect and may result from conceptual or calculation errors.

Question Difficulty: Easy

Assessment	Test	Domain	Skill	Difficulty
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ID: 59cb654c

The area of a square is **64** square inches. What is the side length, in inches, of this square?

- A. **8**
- B. **16**
- C. **64**
- D. **128**

ID: 59cb654c Answer

Correct Answer: A

Rationale

Choice A is correct. It's given that the area of a square is **64** square inches. The area **A**, in square inches, of a square is given by the formula  $A = s^2$ , where **s** is the side length, in inches, of the square. Substituting **64** for **A** in this formula yields  $64 = s^2$ . Taking the positive square root of both sides of this equation yields  $8 = s$ . Thus, the side length, in inches, of this square is **8**.

Choice B is incorrect and may result from conceptual or calculation errors.

Choice C is incorrect. This is the area, in square inches, of the square, not the side length, in inches, of the square.

Choice D is incorrect and may result from conceptual or calculation errors.

Question Difficulty: Easy

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ID: 0837c3b9

Triangle  $ABC$  and triangle  $DEF$  are similar triangles, where  $\overline{AB}$  and  $\overline{DE}$  are corresponding sides. If  $DE = 2AB$  and the perimeter of triangle  $ABC$  is 20, what is the perimeter of triangle  $DEF$  ?

- A. 10
- B. 40
- C. 80
- D. 120

ID: 0837c3b9 Answer

Correct Answer: B

Rationale

Choice B is correct. Since triangles  $ABC$  and  $DEF$  are similar and  $DE = 2AB$ , the length of each side of triangle  $DEF$  is two times the length of its corresponding side in triangle  $ABC$ . Therefore, the perimeter of triangle  $DEF$  is two times the perimeter of triangle  $ABC$ . Since the perimeter of triangle  $ABC$  is 20, the perimeter of triangle  $DEF$  is 40.

Choice A is incorrect. This is half, not two times, the perimeter of triangle  $ABC$ . Choice C is incorrect. This is two times the perimeter of triangle  $DEF$  rather than two times the perimeter of triangle  $ABC$ . Choice D is incorrect. This is six times, not two times, the perimeter of triangle  $ABC$ .

Question Difficulty: Easy

Assessment	Test	Domain	Skill	Difficulty
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ID: c88183f7

A rectangle has a length of **13** and a width of **6**. What is the perimeter of the rectangle?

- A. **12**
- B. **26**
- C. **38**
- D. **52**

ID: c88183f7 Answer

Correct Answer: C

Rationale

Choice C is correct. The perimeter of a quadrilateral is the sum of the lengths of its four sides. It's given that the rectangle has a length of **13** and a width of **6**. It follows that the rectangle has two sides with length **13** and two sides with length **6**. Therefore, the perimeter of the rectangle is  $13 + 13 + 6 + 6$ , or **38**.

Choice A is incorrect. This is the sum of the lengths of the two sides with length **6**, not the sum of the lengths of all four sides of the rectangle.

Choice B is incorrect. This is the sum of the lengths of the two sides with length **13**, not the sum of the lengths of all four sides of the rectangle.

Choice D is incorrect. This is the perimeter of a rectangle that has four sides with length **13**, not two sides with length **13** and two sides with length **6**.

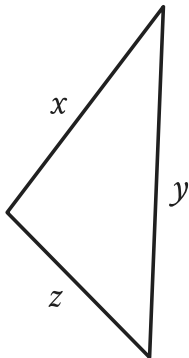
Question Difficulty: Easy

# Question ID 29e9b28c

1.5

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Geometry and Trigonometry	Area and volume	<div> <div></div> <div></div> <div></div> </div>

ID: 29e9b28c



Note: Figure not drawn to scale.

The triangle shown has a perimeter of **22** units. If  $x = 9$  units and  $y = 7$  units, what is the value of  $z$ , in units?

- A. **6**
- B. **7**
- C. **9**
- D. **16**

ID: 29e9b28c Answer

Correct Answer: A

Rationale

Choice A is correct. The perimeter of a triangle is the sum of the lengths of its three sides. The triangle shown has side lengths  $x$ ,  $y$ , and  $z$ . It's given that the triangle has a perimeter of **22** units. Therefore,  $x + y + z = 22$ . If  $x = 9$  units and  $y = 7$  units, the value of  $z$ , in units, can be found by substituting **9** for  $x$  and **7** for  $y$  in the equation  $x + y + z = 22$ , which yields  $9 + 7 + z = 22$ , or  $16 + z = 22$ . Subtracting **16** from both sides of this equation yields  $z = 6$ . Therefore, if  $x = 9$  units and  $y = 7$  units, the value of  $z$ , in units, is **6**.

Choice B is incorrect. This is the value of  $y$ , in units, not the value of  $z$ , in units.

Choice C is incorrect. This is the value of  $x$ , in units, not the value of  $z$ , in units.

Choice D is incorrect. This is the value of  $x + y$ , in units, not the value of  $z$ , in units.

Question Difficulty: Easy

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ID: 3453aafc

What is the area, in square centimeters, of a rectangle with a length of **36** centimeters and a width of **34** centimeters?

- A. **70**
- B. **140**
- C. **1,156**
- D. **1,224**

ID: 3453aafc Answer

Correct Answer: D

Rationale

Choice D is correct. The area  $A$ , in square centimeters, of a rectangle can be found using the formula  $A = \ell w$ , where  $\ell$  is the length, in centimeters, of the rectangle and  $w$  is its width, in centimeters. It's given that the rectangle has a length of **36** centimeters and a width of **34** centimeters. Substituting **36** for  $\ell$  and **34** for  $w$  in the formula  $A = \ell w$  yields  $A = 36(34)$ , or  $A = 1,224$ . Therefore, the area, in square centimeters, of this rectangle is **1,224**.

Choice A is incorrect and may result from conceptual or calculation errors.

Choice B is incorrect. This is the perimeter, in centimeters, not the area, in square centimeters, of the rectangle.

Choice C is incorrect and may result from conceptual or calculation errors.

Question Difficulty: Easy

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ID: f60bb551

The area of a rectangle is **630** square inches. The length of the rectangle is **70** inches. What is the width, in inches, of this rectangle?

- A. **9**
- B. **70**
- C. **315**
- D. **560**

ID: f60bb551 Answer

Correct Answer: A

Rationale

Choice A is correct. The area ***A***, in square inches, of a rectangle is the product of its length ***ℓ***, in inches, and its width ***w***, in inches; thus,  **$A = \ell w$** . It's given that the area of a rectangle is **630** square inches and the length of the rectangle is **70** inches. Substituting **630** for ***A*** and **70** for ***ℓ*** in the equation  **$A = \ell w$**  yields  **$630 = 70w$** . Dividing both sides of this equation by **70** yields  **$9 = w$** . Therefore, the width, in inches, of this rectangle is **9**.

Choice B is incorrect. This is the length, not the width, in inches, of the rectangle.

Choice C is incorrect. This is half the area, in square inches, not the width, in inches, of the rectangle.

Choice D is incorrect. This is the difference between the area, in square inches, and the length, in inches, of the rectangle, not the width, in inches, of the rectangle.

Question Difficulty: Easy

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ID: 4420e500

What is the area of a rectangle with a length of **4 centimeters (cm)** and a width of **2 cm**?

- A. **6 cm<sup>2</sup>**
- B. **8 cm<sup>2</sup>**
- C. **12 cm<sup>2</sup>**
- D. **36 cm<sup>2</sup>**

ID: 4420e500 Answer

Correct Answer: B

Rationale

Choice B is correct. The area of a rectangle with length  $\ell$  and width  $w$  can be found using the formula  $A = \ell w$ . It's given that the rectangle has a length of **4 cm** and a width of **2 cm**. Therefore, the area of this rectangle is **(4 cm)(2 cm)**, or **8 cm<sup>2</sup>**.

Choice A is incorrect. This is the sum, **in cm**, of the length and width of the rectangle, not the area, **in cm<sup>2</sup>**.

Choice C is incorrect. This is the perimeter, **in cm**, of the rectangle, not the area, **in cm<sup>2</sup>**.

Choice D is incorrect. This is the sum of the length and width of the rectangle squared, not the area.

Question Difficulty: Easy



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ID: 165c30c4

A rectangle has a length of **64** inches and a width of **32** inches. What is the area, in square inches, of the rectangle?

ID: 165c30c4 Answer

Correct Answer: 2048

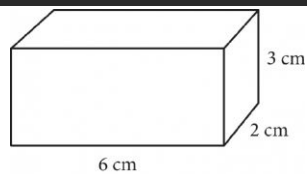
Rationale

The correct answer is **2,048**. The area ***A***, in square inches, of a rectangle is equal to the product of its length ***ℓ***, in inches, and its width ***w***, in inches, or  **$A = \ell w$** . It's given that the rectangle has a length of **64** inches and a width of **32** inches. Substituting **64** for ***ℓ*** and **32** for ***w*** in the equation  **$A = \ell w$**  yields  **$A = (64)(32)$** , or  **$A = 2,048$** . Therefore, the area, in square inches, of the rectangle is **2,048**.

Question Difficulty: Easy

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ID: d683a9cc



The figure shows the lengths, in centimeters (cm), of the edges of a right rectangular prism. The volume  $V$  of a right rectangular prism is  $\ell wh$ , where  $\ell$  is the length of the prism,  $w$  is the width of the prism, and  $h$  is the height of the prism. What is the volume, in cubic centimeters, of the prism?

- A. 36
- B. 24
- C. 12
- D. 11

ID: d683a9cc Answer

Correct Answer: A

Rationale

Choice A is correct. It’s given that the volume of a right rectangular prism is  $\ell wh$ . The prism shown has a length of 6 cm, a width of 2 cm, and a height of 3 cm. Thus,  $\ell wh = (6)(2)(3)$ , or 36 cubic centimeters.

Choice B is incorrect. This is the volume of a rectangular prism with edge lengths of 6, 2, and 2. Choice C is incorrect and may result from only finding the product of the length and width of the base of the prism. Choice D is incorrect and may result from finding the sum, not the product, of the edge lengths of the prism.

Question Difficulty: Easy