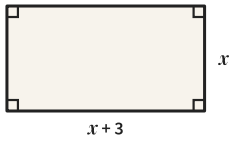


Inequalities and shapes

ANSWERS

1

The perimeter of this rectangle is less than 30 cm. What is the largest whole number x can be?



Write it $4x + 6 < 30$

$$4x < 24$$

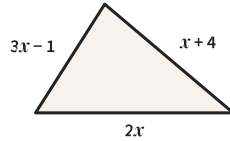
$$x < 6$$

$$x = 5$$

Answer _____

2

The perimeter of this triangle is at most 45 cm. What is the largest whole number x can be?



Write it $6x + 3 \leq 45$

$$6x \leq 42$$

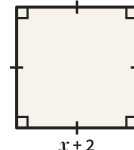
$$x \leq 7$$

$$x = 7$$

Answer _____

3

The perimeter of this square is more than 40 cm. What is the smallest whole number x can be?



Write it $4x + 8 > 40$

$$4x > 32$$

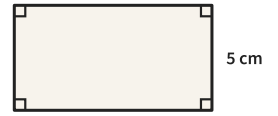
$$x > 8$$

$$x = 9$$

Answer _____

4

The area of this rectangle is at least 30 cm². What is the smallest whole number x can be?



$$x - 1$$

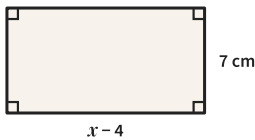
$$x \geq 7$$

$$x = 7$$

Answer _____

5

The perimeter of this rectangle is less than 30 cm, and every side must be longer than 0. Which whole numbers can x be?



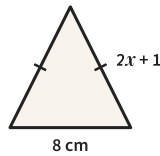
$2x + 6 < 30$ gives $x < 12$; $x - 4 > 0$ gives $x > 4$

$$5 \text{ to } 11$$

Answer _____

6

The two sides with a mark are equal. The perimeter is at most 30 cm. What is the largest whole number x can be?



$$4x + 10 \leq 30$$

$$x = 5$$

Answer _____

7

A square has sides of x cm. A rectangle is x cm by 5 cm. The square has the larger perimeter. What is the smallest whole number x can be?

$$4x > 2x + 10, \text{ so } x > 5$$

$$x = 6$$

Answer _____

8

A farmer has 50 m of fence for a rectangular pen. The length is twice the width. What is the largest whole number of metres the width can be?



$$6w \leq 50, \text{ so } w \leq 8.3$$

$$8 \text{ m}$$

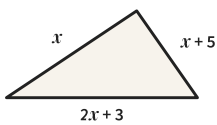
Answer _____

Inequalities and shapes further practice

ANSWERS

9

The perimeter of this triangle is less than 50 cm. What is the largest whole number x can be?



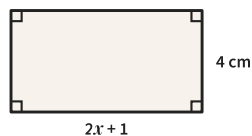
$$4x + 8 < 50, \text{ so } x < 10.5$$

$$x = 10$$

Answer _____

10

The area of this rectangle is less than 50 cm². What is the largest whole number x can be?



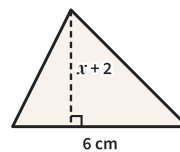
$$8x + 4 < 50, \text{ so } x < 5.75$$

$$x = 5$$

Answer _____

11

The area of this triangle is at least 24 cm². What is the smallest whole number x can be?



$$\frac{1}{2} \times 6 \times (x + 2) \geq 24, \text{ so } x \geq 6$$

$$x = 6$$

Answer _____

12

The perimeter of a square with sides of $x + 1$ cm is more than 20 cm and less than 30 cm. Which whole numbers can x be?

$$20 < 4x + 4 < 30, \text{ so } 4 < x < 6.5$$

$$5 \text{ and } 6$$

Answer _____

13

A square has sides of x cm. A rectangle is 4 cm by x cm. The square has the larger area. What is the smallest whole number x can be?

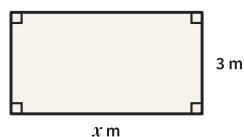
$$x^2 > 4x; \text{ divide by } x: x > 4$$

$$x = 5$$

Answer _____

14

Carpet costs £12 per m². A room is 3 m wide and x m long. The carpet must cost no more than £200. What is the longest whole number of metres the room can be?



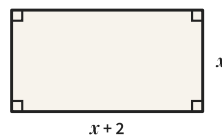
$$36x \leq 200, \text{ so } x \leq 5.6$$

$$5 \text{ m}$$

Answer _____

15

The perimeter of this rectangle is less than 40 cm and its area is more than 30 cm². Which whole numbers can x be?



$$4x + 4 < 40 \text{ gives } x < 9; 4 \times 6 = 24 \text{ is too small, } 5 \times 7 = 35 \text{ is enough}$$

$$5, 6, 7, 8$$

Answer _____

16

Amir says if the perimeter of a square is less than 20 cm, each side is less than 20 cm. Is he right? What is the best thing to say about the sides?

$$4s < 20, \text{ so } s < 5$$

$$\text{each side} < 5 \text{ cm}$$

Answer _____