

1) Answer: D

**Explanation:** An acute angle has a degree measurement between 0 degrees and 90 degrees. Therefore, if  $r$  represents the measurement of an acute angle, then the value of  $r$  should be between 0 and 90. In symbols,  $0 < r < 90$ .

2) Answer: D

**Explanation:** A [quadrilateral is a four-sided polygon](#). Among the given options, only rhombus and parallelogram are quadrilaterals.

3) Answer: B

**Explanation:** The side of the equilateral triangle measures  $2x - 1$ . Since we have an equilateral triangle, this implies that all of its sides are congruent. Hence, if a measurement of its side is  $2x - 1$ , then its remaining two sides measure  $2x - 1$  each as well.

The [perimeter of a triangle](#) is just the sum of the measures of its sides, if each side measures  $2x - 1$ , then we have

$$P = (2x - 1) + (2x - 1) + (2x - 1) = 6x - 3$$

If the perimeter of the equilateral triangle is 15, then we have  $P = 15$ .

$$\begin{aligned} P &= 6x - 3 \\ 15 &= 6x - 3 \\ 15 + 3 &= 6x \\ 18 &= 6x \\ 6x &= 18 \\ 6x/6 &= 18/6 \\ x &= 3 \end{aligned}$$

*Substitute  $P = 15$   
Transposition method*

*Symmetric property*

Thus, the value of  $x$  is 3.

**4) Answer: B**

**Explanation:** To determine the perimeter of a square with an area of  $121 \text{ cm}^2$ , we need to identify first the measure of its side. The formula for the area of a square is  $A = s^2$ , where  $s$  is the measurement of a side of a square.

$$A = s^2$$

$$121 = s^2$$

$$\sqrt{121} = \sqrt{s^2}$$

$$11 = s$$

$$s = 11$$

*Since the area of the square is  $121 \text{ cm}^2$*

*Taking the square root of both sides*

From our computation above, the length of a side of a square is 11 cm.

The perimeter of a square is just the sum of the measurements of its sides. If each side of the square is 11 cm, then we have  $P = 11 + 11 + 11 + 11 = 44 \text{ cm}$ .

Thus, the perimeter of the square is 44 cm.

**5) Answer: C**

**Explanation:** Let  $w$  be the width of the rectangle. If the length of the rectangle is 6 meters longer than the width, then we can express the measurement of the length as  $w + 6$ . According to the given problem, the perimeter of the rectangle is 44 meters.

The formula for the perimeter of a rectangle is  $P = 2l + 2w$ , if  $P = 44$ , then we have:

$$P = 2l + 2w$$

$$44 = 2l + 2w$$

Note that we have expressed the measurement of the length as  $w + 6$ , so we have

$$44 = 2(w + 6) + 2w$$

$$44 = 2w + 12 + 2w$$

$$44 = 4w + 12$$

$$-12 + 44 = 4w$$

$$32 = 4w$$

$$4w = 32$$

$$4w/4 = 32/4$$

$$w = 8$$

*Distributive property*

*Combining like terms*

*Transposition method*

*Symmetric property*

*Dividing both sides of the equation by 4*

Since  $w$  represents the width of the rectangle, then the width of the rectangle is 8 meters long.

**6) Answer: D**

**Explanation:** Let us determine first how many square meters the floor of the room occupied. If the dimension of the room's floor is 8 meters long by 5 meters wide, then the number of square meters it occupies is just the area of the floor of this room.

$$A = 8 \times 5 = 40 \text{ m}^2.$$

This means that the room has 40 square meters.

Tiling a floor costs PHP 150 per square meter. If the floor of the room covers 40 square meters, then if you tile the floor, you have to spend  $150 \times 40 = \text{PHP } 6,000$ .

The answer is PHP 6,000.

**7) Answer: A**

**Explanation:** The amount of water required to fill an aquarium is equal to the volume of that aquarium.

If the dimensions of the aquarium are as follows: length = 8 ft, width = 5 ft, and height = 4 ft, then its volume is

$$V = l \times w \times h$$

$$V = (8) \times (5) \times (4)$$

[Volume of a rectangular prism](#)

$$V = 160$$

Thus, the volume of the aquarium is  $160 \text{ ft}^3$ . This means that it requires  $160 \text{ ft}^3$  of water to fill the aquarium.

**Important note:** Volume is always expressed in cubic units. This is the reason why  $160$  cubic feet ( $\text{ft}^3$ ) should be the final answer for this problem and not  $160$  square feet ( $\text{ft}^2$ ).

**8) Answer: B**

**Explanation:** The formula for the [perimeter of a square](#) is  $P = 4s$ , where  $s$  is the measurement of a side of the square.

The problem states that the side of the square measures  $3 \frac{1}{5}$  meters. Hence, we have  $s = 3 \frac{1}{5}$

$$P = 4s$$

$$P = 4\left(3 \frac{1}{5}\right)$$

$$P = 4 \times \frac{16}{5}$$

We transform  $3 \frac{1}{5}$  into [improper fraction](#) form

$$P = \frac{4}{1} \times \frac{16}{5} = \frac{64}{5}$$

We can transform  $64/5$  (which is an improper fraction) to mixed form. To do this, we divide the fractions' numerator by the denominator. The quotient will be the whole number portion, the remainder will be the numerator of the mixed form, and the divisor will be the denominator.

$$64 \div 5 = 12 \text{ r. } 4$$

Thus,  $64/5$  is equal to  $12 \frac{4}{5}$ .

$$P = 12 \frac{4}{5}$$

Based on our computation above, the perimeter of the square is  $12 \frac{4}{5}$  meters.

**9) Answer: A**

**Explanation:** Let us compute first the [perimeter of the square](#). To do this, we have to compute first for the measurement of its side. The problem mentioned that the [area of the square](#) is 36 cm<sup>2</sup>. Using this information, we can compute for the side:

$$A = s^2$$

$$36 = s^2$$

$$s^2 = 36$$

$$\sqrt{s^2} = \sqrt{36}$$

$$s = 6$$

*The area of the square is 36 cm<sup>2</sup>*

*Symmetric property*

*Taking the square root of both sides*

From our calculation above, the measurement of the side of the square is 6 cm.

The perimeter of the square is given by the formula  $P = 4s$ . If  $s = 6$ , then the perimeter is  $P = 4(6) = 24$  cm.

Since the square and an equilateral triangle have the same perimeter, this means that the perimeter of the equilateral triangle is 24 cm also.

To find the measurement of the side of the equilateral triangle, we divide 24 by 3:  $24/3 = 8$ .

This means that the side of the equilateral triangle is 8 cm long.

**10) Answer: C**

**Explanation:** If two angles are [supplementary](#), then the sum of their degree measurements is 180.