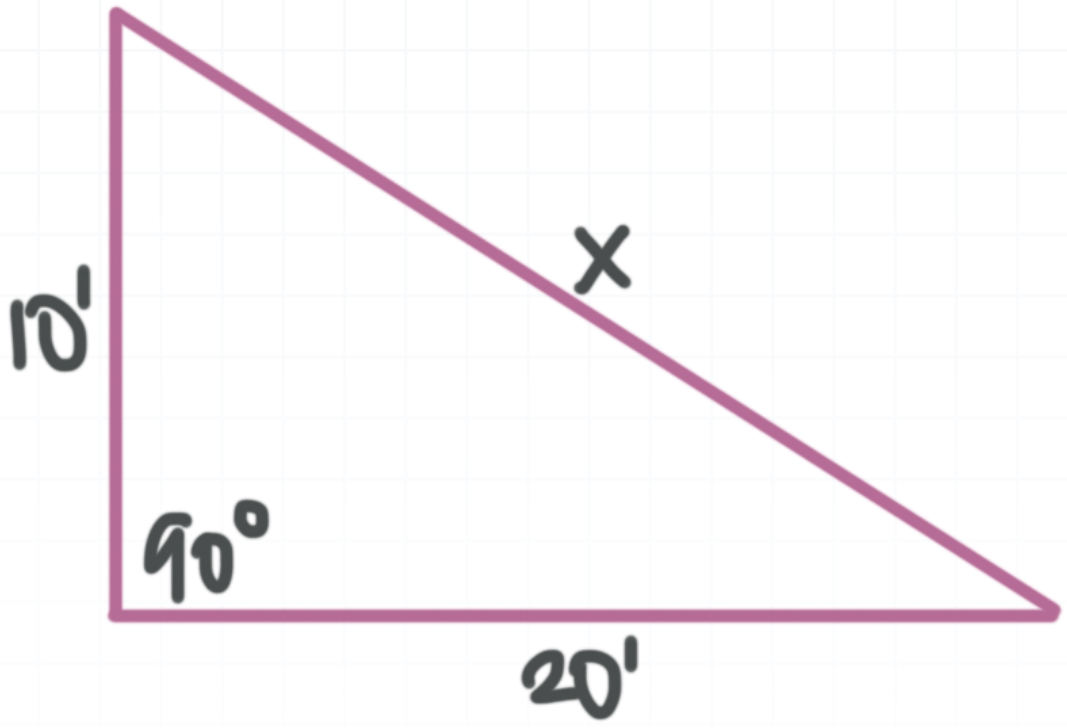
Topic: Pythagorean Theorem

Question: Find the length of the hypotenuse.



Answer choices:

A $5\sqrt{5}$

B $10\sqrt{5}$

C $2\sqrt{10}$

D $4\sqrt{5}$

Solution: B

Since this is a right triangle and we already know the lengths of two of its sides, we can use the Pythagorean Theorem to find the length of the third side.

Plugging in the lengths we've been given, we get

$$a^2 + b^2 = c^2$$

$$(10 \text{ ft})^2 + (20 \text{ ft})^2 = x^2$$

$$100 \text{ ft}^2 + 400 \text{ ft}^2 = x^2$$

$$500 \text{ ft}^2 = x^2$$

Solve for the length of the hypotenuse.

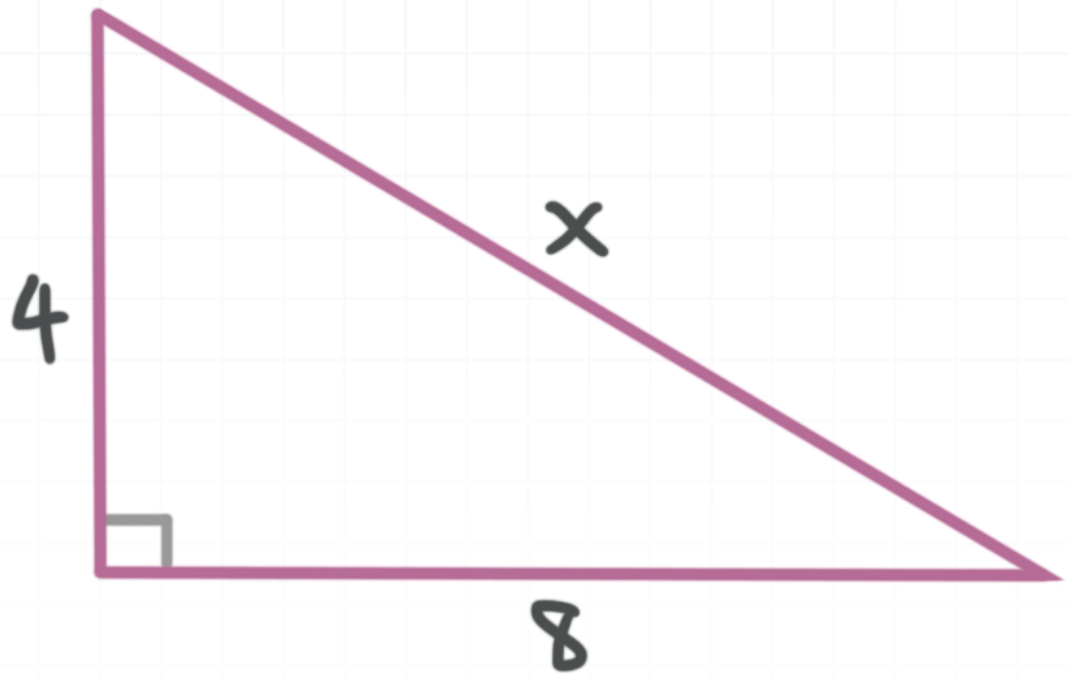
$$x = \sqrt{500} \text{ ft}$$

$$x = \sqrt{100 \cdot 5} \text{ ft}$$

$$x = 10\sqrt{5} \text{ ft}$$

Topic: Pythagorean Theorem

Question: Find the length of the unknown side.



Answer choices:

A 5

B $5\sqrt{4}$

C 6

D $4\sqrt{5}$

Solution: D

If we plug all three side lengths, including x, into the Pythagorean Theorem, we get

$$a^2 + b^2 = c^2$$

$$4^2 + 8^2 = x^2$$

$$16 + 64 = x^2$$

$$80 = x^2$$

Solve for x.

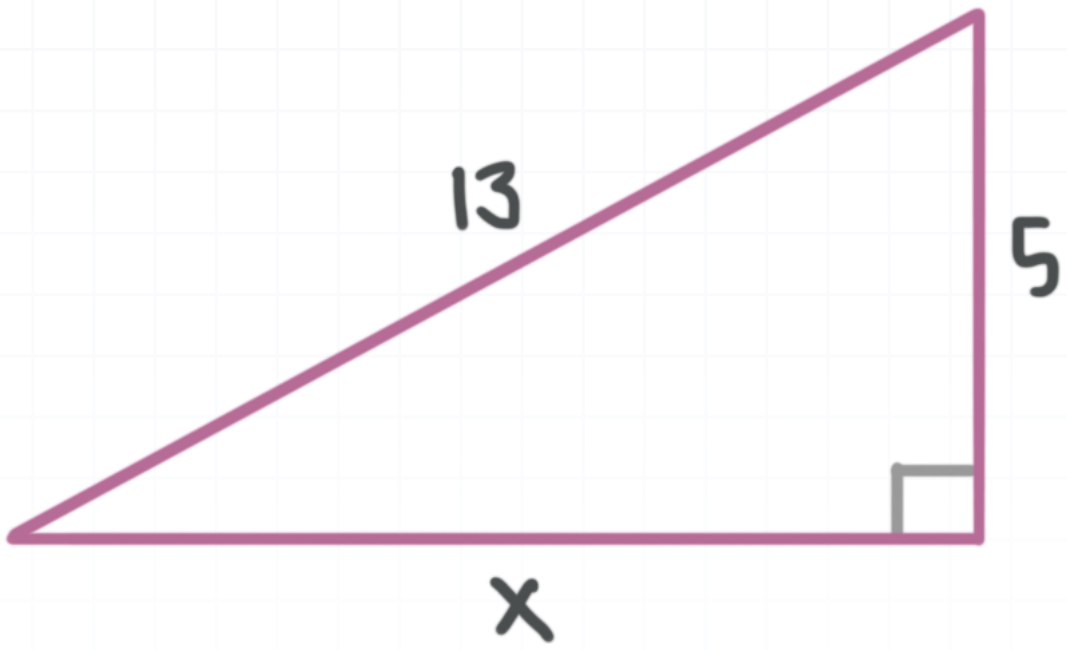
$$x = \sqrt{80}$$

$$x = \sqrt{16 \cdot 5}$$

$$x = 4\sqrt{5}$$

Topic: Pythagorean Theorem

Question: Find the value of x.



Answer choices:

A $2\sqrt{5}$

B $5\sqrt{5}$

C 6

D 12

Solution: D

If we plug all three side lengths, including x, into the Pythagorean Theorem, we get

$$a^2 + b^2 = c^2$$

$$5^2 + x^2 = 13^2$$

$$25 + x^2 = 169$$

Solve for x.

$$x^2 = 169 - 25$$

$$x^2 = 144$$

$$x = \sqrt{144}$$

$$x = 12$$