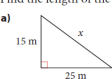
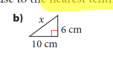
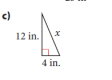
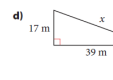


Solutions

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2. Find the length of the hypotenuse to the nearest tenth of a unit.

a)  b) 

c)  d) 

Need to find the hypotenuse in each case.

(a) $x^2 = 15^2 + 25^2$
 $x^2 = 225 + 625$
 $x^2 = 850$
 $x = \sqrt{850}$
 $x = 29.2 \text{ m}$

(b) $x^2 = 6^2 + 10^2$
 $x^2 = 36 + 100$
 $x^2 = 136$
 $x = \sqrt{136}$
 $x = 11.7 \text{ cm}$

(c) $x^2 = 12^2 + 4^2$
 $x^2 = 144 + 16$
 $x^2 = 160$
 $x = \sqrt{160}$
 $x = 12.6 \text{ in}$

(d) $x^2 = 17^2 + 39^2$
 $x^2 = 289 + 1521$
 $x^2 = 1810$
 $x = \sqrt{1810}$
 $x = 42.5 \text{ m}$

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Find the length of the indicated side to the nearest tenth of a meter.

Need to find the length of one of the "legs" in each case.

(a) $x^2 + 15^2 = 25^2$
 $x^2 + 225 = 625$
 $x^2 = 625 - 225$
 $x^2 = 400$
 $x = \sqrt{400}$
 $x = 20.0\text{m}$

(b) $d^2 + 6^2 = 10^2$
 $d^2 + 36 = 100$
 $d^2 = 100 - 36$
 $d^2 = 64$
 $d = \sqrt{64}$
 $d = 8.0\text{cm}$

(c) $p^2 + 12^2 = 13^2$
 $p^2 + 144 = 169$
 $p^2 = 169 - 144$
 $p^2 = 25$
 $p = \sqrt{25}$
 $p = 5.0\text{m}$

(d) $f^2 + 15^2 = 39^2$
 $f^2 + 225 = 1521$
 $f^2 = 1521 - 225$
 $f^2 = 1296$
 $f = \sqrt{1296}$
 $f = 36.0\text{m}$

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7. A television is described as a 20" television if the screen has a diagonal length of 20".



- a) If the screen of a 20" flat-screen television has a height of 12", what is the width?
- b) If a new 55" plasma television screen has a height of 35", what is the width of the screen?

(a)

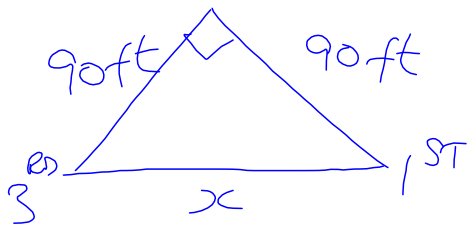
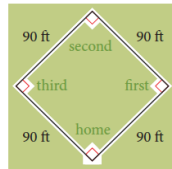
$x^2 + 12^2 = 20^2$
 $x^2 + 144 = 400$
 $x^2 = 400 - 144$
 $x^2 = 256$
 $x = \sqrt{256} = 16\text{ inches}$

(b)

$y^2 + 35^2 = 55^2$
 $y^2 + 1225 = 3025$
 $y^2 = 3025 - 1225$
 $y^2 = 1800$
 $y = \sqrt{1800} = 42.4\text{in}$

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10. Natalya is playing baseball. She catches a ground ball at third base. The player on the opposing team is running toward first base. How far does Natalya have to throw the ball to throw the runner out?



x is the hypotenuse of the right isosceles triangle.

$$x^2 = 90^2 + 90^2$$

$$x^2 = 8100 + 8100$$

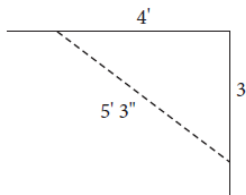
$$x^2 = 16200$$

$$x = \sqrt{16200}$$

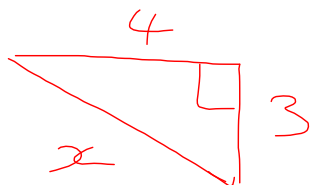
$$x = 127.3 \text{ ft}$$

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11. Sue and Greg are laying new laminate flooring in their living room. To check that the walls are square, Sue makes marks 3' from the corner along one wall and 4' from the same corner along the other wall. She measures the distance between the marks to be 5' 3". Do the walls in this corner meet at right angles? How do you know?



Find the length of the hypotenuse.



$$x^2 = 3^2 + 4^2$$

$$x^2 = 9 + 16$$

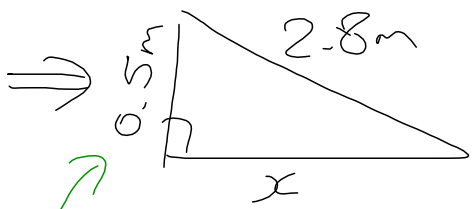
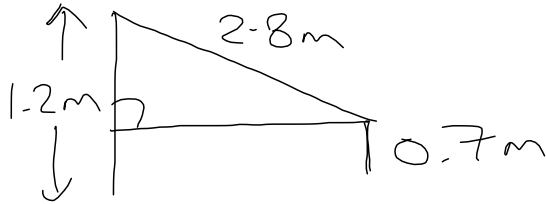
$$x^2 = 25$$

$$x = \sqrt{25} = 5 \text{ ft}$$

The corner is not a right angle because the hypotenuse is 5' 3" NOT 5' exactly.

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15. A loading ramp is 2.8 m long. One end rests on a loading dock 0.7 m above the ground, and the other end leads into the back of a tractor trailer 1.2 m above the ground. Find the horizontal distance between the back of the truck and the loading dock, to the nearest tenth of a metre.



$1.2\text{m} - 0.7\text{m} = 0.5\text{m}$

$$x^2 + 0.5^2 = 2.8^2$$

$$x^2 + 0.25 = 7.84$$

$$x^2 = 7.84 - 0.25$$

$$x^2 = 7.59$$

$$x = 2.75\text{m}$$

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