Warm Up:

Simplify:

$\frac{2}{\sqrt{2}} \cdot \frac{\sqrt{2}}{\sqrt{2}} = \frac{2\sqrt{2}}{2}$

$\sqrt{2}$

$4\sqrt{72}$

$24\sqrt{2}$

$4 \cdot 36$

$2 \cdot 18$

$9 \cdot 2$

$3 \cdot 3$

$3\sqrt{2} + \sqrt{32} - 4\sqrt{72}$

$3\sqrt{2} + 4\sqrt{2} - 24\sqrt{2}$

$-17\sqrt{2}$

# Homework Check:

**1.** $c \approx 19.2$ cm

**2.** $a = 12$ cm

**3.** $b \approx 5.3$ cm

**4.** $d = 10$ cm

**5.** $s = 26$ cm

**6.** $c \approx 8.5$ cm

**7.** $b = 24$ cm

**9.** $x = 40$ cm

**10.** $s \approx 3.5$ cm

**11.** $r = 13$ cm

**12.** 26 units

**13.** yes

**14.** yes

**15.** no

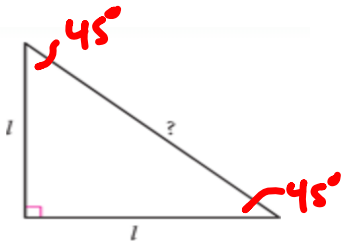
**19.** 127 ft

**23.** 28 m

**25.** No, the given lengths are not a Pythagorean triple.

# 10.2 - Special Right Triangles

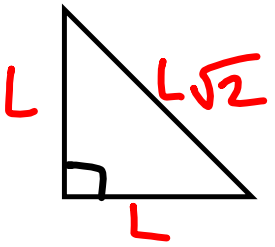
January 31, 2020



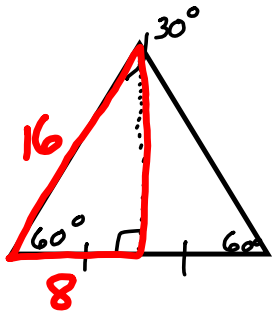

| Length of each leg | 1 | 2 | 3 | 4 | 5 | 6 | 7 | … | 10 | … | $l$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Length of hypotenuse | $\sqrt{2}$ | $2\sqrt{2}$ | $3\sqrt{2}$ | $4\sqrt{2}$ | $5\sqrt{2}$ | $6\sqrt{2}$ | $7\sqrt{2}$ | | $10\sqrt{2}$ | | $l\sqrt{2}$ |

(45-45-90)

**Isosceles Right Triangle Conjecture:** in an isosceles right triangle, if the legs have length L, then the hypotenuse has length $L\sqrt{2}$

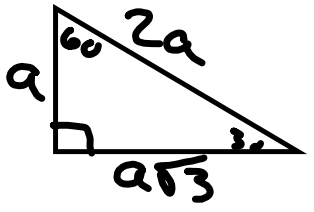


January 31, 2020



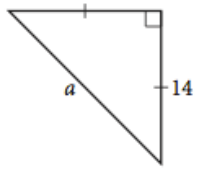

| Length of shorter leg | 1 | 2 | 3 | 4 | 5 | 6 | 7 | … | 10 | … | $a$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Length of hypotenuse | 2 | 4 | 6 | 8 | 10 | 12 | 14 | | 20 | | $2a$ |
| Length of longer leg | $\sqrt{3}$ | $2\sqrt{3}$ | $3\sqrt{3}$ | | | | | | | | $a\sqrt{3}$ |

**30-60-90 Triangle Conjecture:** in a 30, 60, 90 triangle, if the shorter leg has length a, then the longer leg has length a$\sqrt{3}$ and the hypotenuse has length 2a

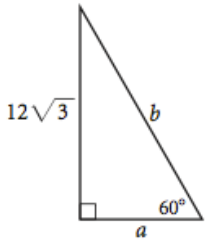


In Exercises 1–3, find the unknown lengths.

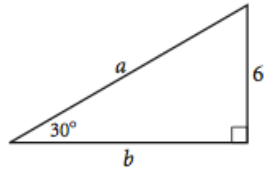
**1.** $a =$ _____



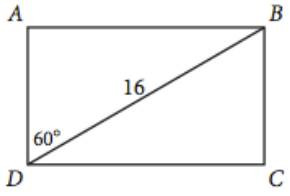

**2.** $a =$ _____, $b =$ _____



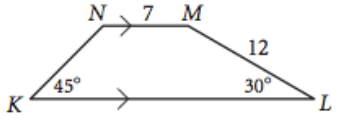

**3.** $a =$ _____, $b =$ _____



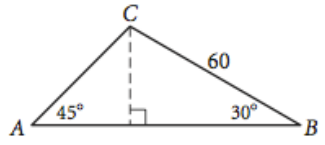

**4.** Find the area of rectangle *ABCD*.




**5.** Find the perimeter and area of *KLMN*.




**6.** $AC =$ _____, $AB =$ _____, and area $\triangle ABC =$ _____.




**7.** Find the area of an isosceles trapezoid if the bases have lengths 12 cm and 18 cm and the base angles have measure 60°.

January 31, 2020