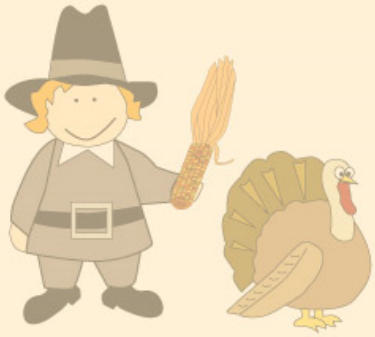
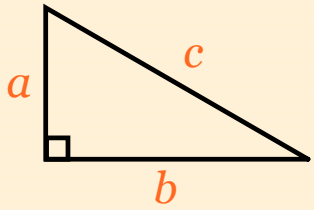
The Pythagorean Theorem

In a right triangle, the sum of the squares of the measures of the legs equals the square of the measure of the hypotenuse.



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

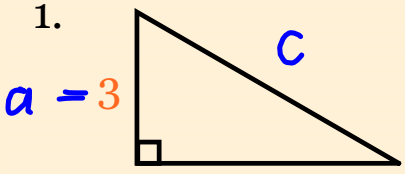


a & b = legs

c = hypotenuse

Use the Pythagorean Theorem to find the length of the missing side.

1.



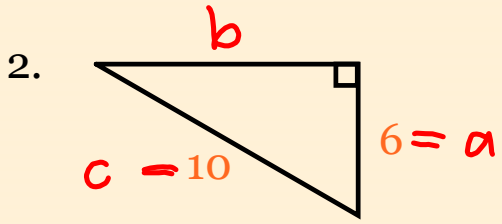
$3^2 + 4^2 = c^2$

$9 + 16 = c^2$

$\sqrt{25} = \sqrt{c^2}$

$5 = c$

2.



$6^2 + b^2 = 10^2$

$36 + b^2 = 100$

$-36 \quad -36$

$\sqrt{b^2} = \sqrt{64}$

$b = 8$

Use the Pythagorean Theorem to find the length of the missing side

3. $4 = a$, $b = 8$, c

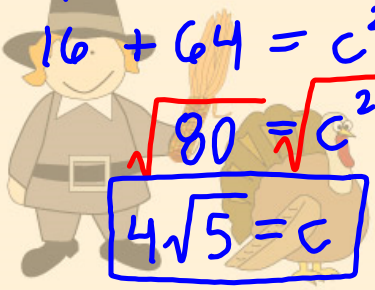
$2 \mid 80$, $2 \mid 40$, $2 \mid 20$, $2 \mid 10$, 5

$4^2 + 8^2 = c^2$

$16 + 64 = c^2$

$\sqrt{80} = \sqrt{c^2}$

$4\sqrt{5} = c$



4. $c = 10$, $5 = b$, a

$a^2 + 5^2 = 10^2$

$a^2 + 25 = 100$

$-25 \quad -25$

$\sqrt{a^2} = \sqrt{75}$

$a = 5\sqrt{3}$

$3 \mid 75$, $5 \mid 25$, 5

Use the Pythagorean Theorem to find the length of the missing side.

5. $8 = b$, a, $11 = c$

$a^2 + 8^2 = 11^2$

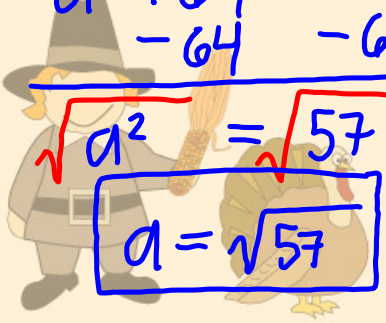
$a^2 + 64 = 121$

$-64 \quad -64$

$\sqrt{a^2} = \sqrt{57}$

$a = \sqrt{57}$

$3 \mid 57$, 19



6. $a = 9$, c, $6 = b$

$6^2 + 9^2 = c^2$

$36 + 81 = c^2$

$\sqrt{117} = \sqrt{c^2}$

$3\sqrt{13} = c$

$3 \mid 117$, $13 \mid 39$, 3