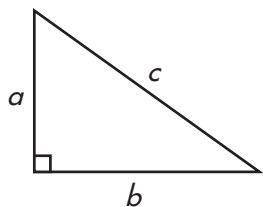


# Lesson 5.8 Using Pythagorean Theorem

If  $a$ ,  $b$ , and  $c$  are the lengths of the sides of this triangle,  $a^2 + b^2 = c^2$ .



If  $a = 3$  and  $b = 4$ , what is  $c$ ?

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

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

$$9 + 16 = c^2$$

$$25 = c^2$$

$$\sqrt{25} = c$$

$$5 = c$$

If  $a = 4$  and  $b = 6$ , what is  $c$ ?

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

$$4^2 + 6^2 = c^2$$

$$16 + 36 = c^2$$

$$52 = c^2$$

$$\sqrt{52} = c$$

$$c = \text{about } 7.21$$

Use the Pythagorean Theorem to determine the length of  $c$ . Assume that each problem describes a right triangle. Sides  $a$  and  $b$  are the legs and the hypotenuse is  $c$ .

1. If  $a = 9$  and  $b = 4$ ,  $c = \sqrt{\quad}$  or about  $\quad$ .

2. If  $a = 5$  and  $b = 7$ ,  $c = \sqrt{\quad}$  or about  $\quad$ .

3. If  $a = 3$  and  $b = 6$ ,  $c = \sqrt{\quad}$  or about  $\quad$ .

4. If  $a = 2$  and  $b = 9$ ,  $c = \sqrt{\quad}$  or  $\quad$ .

5. If  $a = 5$  and  $b = 6$ ,  $c = \sqrt{\quad}$  or about  $\quad$ .

6. If  $a = 3$  and  $b = 5$ ,  $c = \sqrt{\quad}$  or about  $\quad$ .

7. If  $a = 7$  and  $b = 6$ ,  $c = \sqrt{\quad}$  or about  $\quad$ .

8. If  $a = 8$  and  $b = 6$ ,  $c = \sqrt{\quad}$  or  $\quad$ .

9. If  $a = 7$  and  $b = 2$ ,  $c = \sqrt{\quad}$  or about  $\quad$ .

10. If  $a = 8$  and  $b = 5$ ,  $c = \sqrt{\quad}$  or about  $\quad$ .