Find the missing side in each triangle. For non-integer answers leave the answer in simplified radical form.

1.

$$12^2 + x^2 = 18^2$$
$$144 + x^2 = 324$$
$$x^2 = 180$$

18
x
12

$$\sqrt{180} = \sqrt{36 \cdot 5}$$
$$= 6\sqrt{5}$$

2.

36
x
28

$$36^2 + 28^2 = x^2$$
$$2080 = x^2$$
$$\sqrt{16 \cdot 130}$$
$$x = 4\sqrt{130}$$
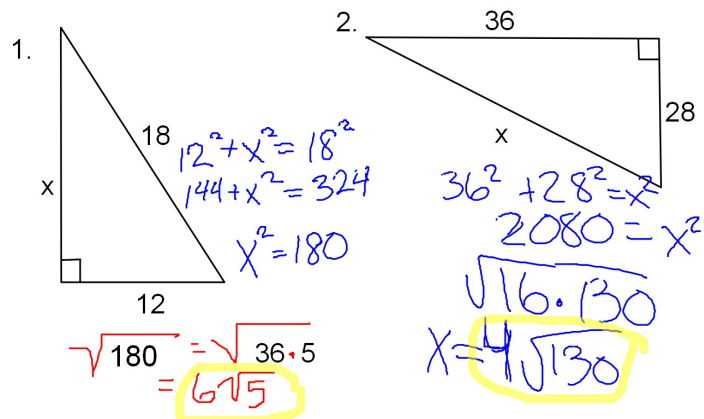
Does each set of lengths form a right triangle?   NO

3. 16, 30, 34   Yes

$$16^2 + 30^2 = 34^2$$
$$256 + 900$$
$$1156 = 1156$$

4. 11, 59, 61

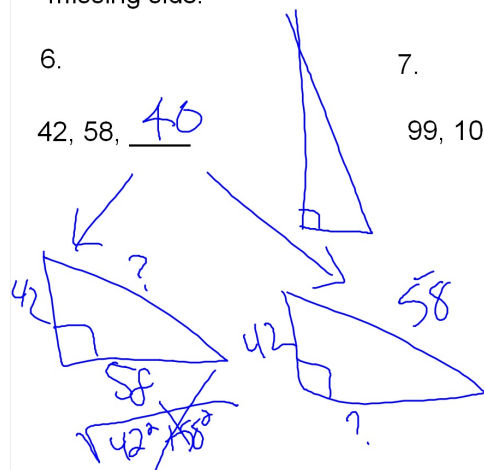5. Is this a Pythagorean Triple?   14, 48, 50   Yes

$$14^2 + 48^2 = 50^2$$
$$196 + = 2500$$
$$2500$$

Each set of numbers are sides of a right triangle. All missing numbers are natural numbers. Find the missing side.

6.

42, 58, __40__

?
42
58
$$\sqrt{42^2 + 58^2}$$
42
58
?
$$\sqrt{58^2 - 42^2} = 40$$

7.

99, 101, __20__

$$\sqrt{99^2 + 101^2} =$$
or
$$\sqrt{101^2 - 99^2} = 20$$

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8. Find the value of x.

144
145
17
15
x

$$x^2 + 144^2 = 145^2$$
$$x = 17$$

$$x^2 + 15^2 = 17^2$$
$$x = 8$$

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