HW 7.2

April 1, 2015   8:55 PM

Name:_____   Date:_____

Math 8 Section 7.2 What is the Pythagorean Theorem:

1. Given each right triangle, indicate which side is the hypotenuse:

a)	b)	c)
z x ⟨y⟩	g ⟨f⟩ h	c ⟨b⟩ a

d)	e)	f)
C A E **EA**	B Z I **IZ**	E V T **NOT A RIGHT TRIANGLE**
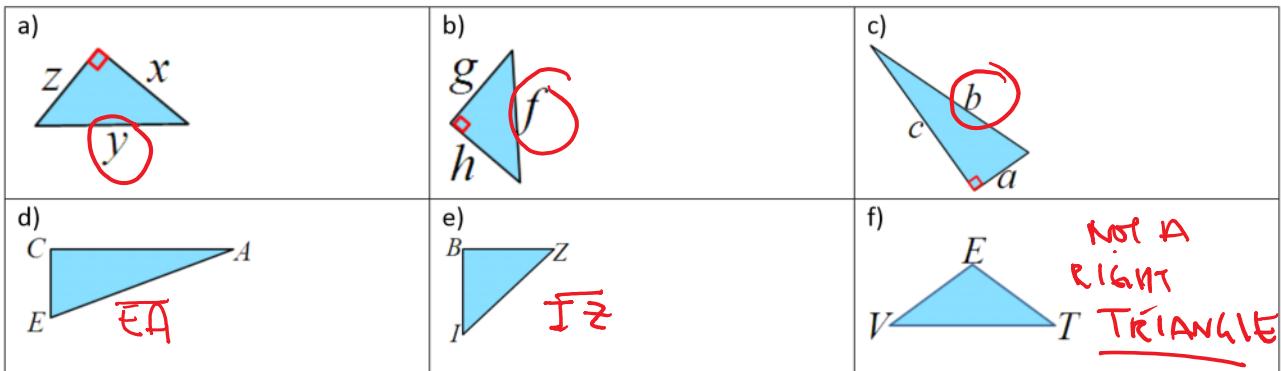
2. Given the following triangles, find the area of the unknown square:

A $18cm^2$ ⟨$?? cm^2$⟩ B $5cm^2$ C **$18cm^2 - 5cm^2$ $= 13cm^2$**	A $?? cm^2$ $16cm^2$ B $10cm^2$ C **$10cm^2 + 16cm^2$ $= 26cm^2$**	A $?? cm^2$ $16cm^2$ B $16cm^2$ C **$16cm^2 + 16cm^2$ $= 32cm^2$**
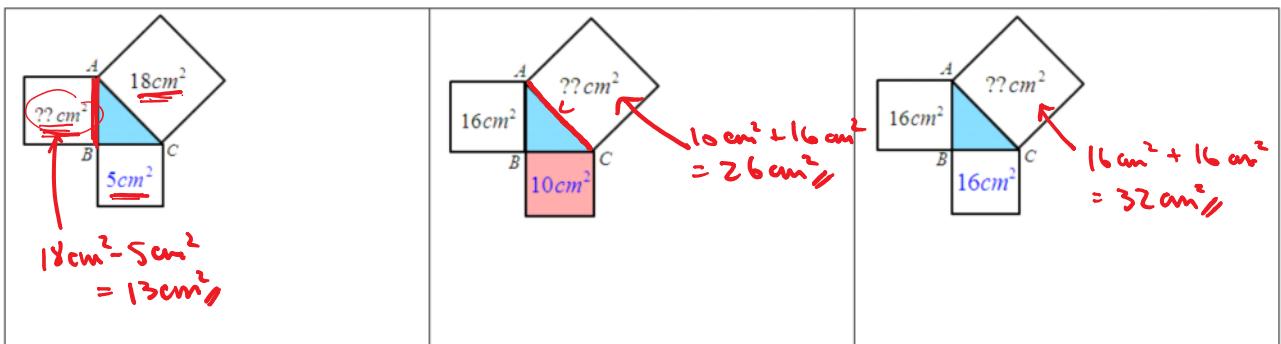
3. Given each right triangle, find the length of the missing side "x"

a)	b)	c)
6 10 ⟨x⟩ $10^2 - 6^2 = x^2$ $100 - 36 = x^2$ $64 = x^2$ $\boxed{8 = x}$	15 x 25 $25^2 - 15^2 = x^2$ $625 - 225 = x^2$ $400 = x^2$ $20 = x$ $\sqrt{400} = 20$	x 12 5 $12^2 + 5^2 = x^2$ $144 + 25 = x^2$ $169 = x^2$ $\boxed{13 = x}$

| d)	e)	f)
24 x 26 $x^2 = 26^2 - 24^2$ $x^2 = (26+24)(26-24)$ $x^2 = 50(2)$ $x^2 = 100$ $x = 10$	12 ⟨x⟩ 18 $x^2 = 18^2 - 12^2$ $x^2 = (18+12)(18-12)$ $x^2 = 30(6)$ $x^2 = 180$ $x = \sqrt{180}$	14 16 x 256 **196** $x = \sqrt{452}$ $196 + 256$ $= 452 un^2$
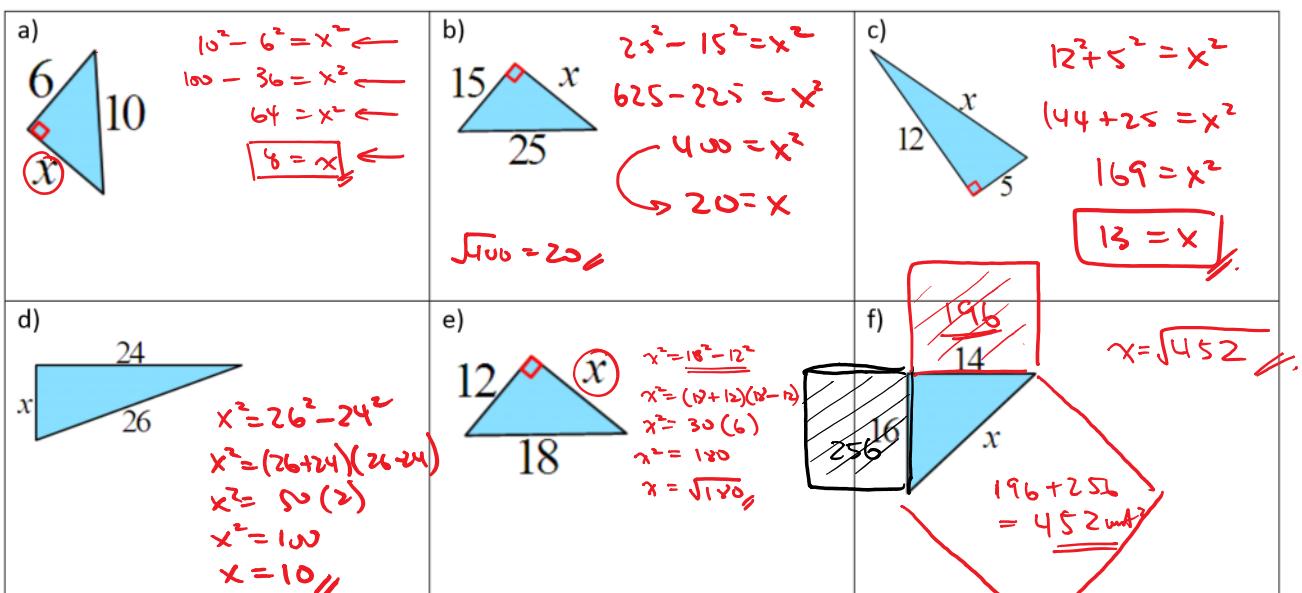
4. What type of a triangle will the Pythagorean theorem work?

RIGHT TRIANGLE

5. The base of a right triangle is <u>20</u>, the hypotenuse is <u>12cm</u>, then what is the height and the area of the triangle?

NOT POSSIBLE, B/C THE HYPOTENUSE MUST BE THE LONGEST SIDE!

6. Given the following diagram, is the triangle in the middle a right triangle?

$49cm^2$

$24cm^2$

$24cm^2$
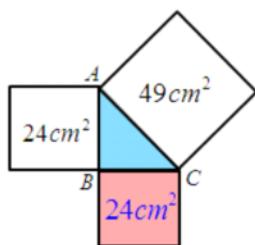
7. Given the diagram below, if the length of each square is 7cm long, what is the length of AC?

7 cm

$$7^2 + 21^2 = x^2$$
$$49 + 441 = x^2$$
$$490 = x^2$$
$$\boxed{\sqrt{490} = x}$$
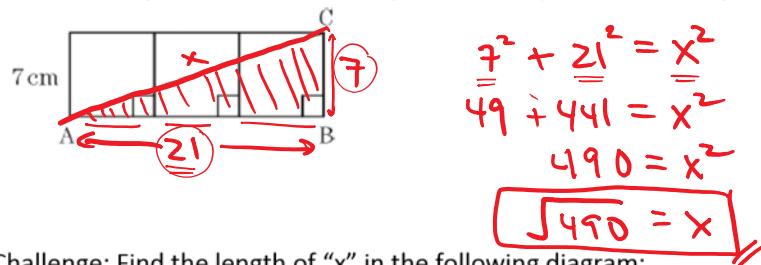
8. Challenge: Find the length of "x" in the following diagram:

$$\boxed{12^2 + 3^2 + 4^2 + 5^2 = x^2}$$
$$y^2 + 4^2 + 5^2 = x^2$$
$$z^2 + 5^2 = x^2$$
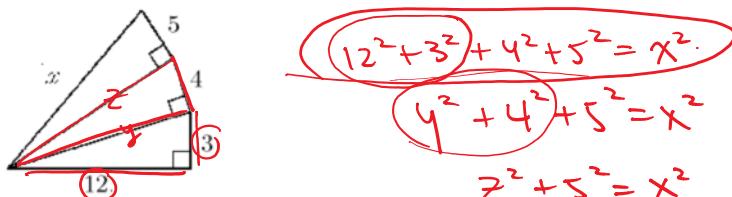
$$a^2 + b^2 = c^2 \qquad \boxed{a^2 - b^2 = (a+b)(a-b)}$$

$$10^2 - 6^2 = (10+6)(10-6)$$

$$\boxed{1000^2 - 999^2}$$

$$(1000 + 999)(1000 - 999)$$

$$(1999)(1)$$

$$\underline{\underline{10^2}} - \underline{\underline{6^2}} = (10 + 6)(10 - 6)$$
$$= (16)(4)$$
$$= 64 //$$

$$26^2 - 24^2 = (26 + 24)(26 - 24)$$
$$= (50)(2)$$
$$= 100 //$$

$$a^2 + b^2 = c^2 \qquad \boxed{a^2 - b^2 = (a+b)(a-b)} \leftarrow$$

$$1000^2 - 999^2 = (1000 + 999)(1000 - 999)$$
$$= 1999 (1)$$
$$= 1999 //$$

$$\underline{\underline{10^2}} - 8^2 = (10 + 8)(10 - 8)$$
$$100 - 64 \qquad = 18(2)$$
$$= 36 ✓$$

$$26^2 - 24^2 = (26 + 24)(26 - 24)$$
$$676 - 576 = (50)(2)$$
$$= 100 //$$