

Jan 8-9:07 AM

16. What expression must the center cell of the table below contain so that the **sums** of each row and each column are equivalent?

$-4x$	$9x$	$2x$
$7x$		$-3x$
$4x$	$-5x$	$8x$

$7x$
 $7x$
1 2 3 4 5

F. $5x$
G. $3x$
 H. 0
 J. $-x$
 K. $-4x$

17. Point A is to be graphed in a quadrant, not on an axis, of the standard (x, y) coordinate plane below. If the x -coordinate and the y -coordinate of point A are to have the same signs, then point A must be located in:

$(-, +)$
II

$(+, +)$
I

$(-, -)$
III

IV

A. Quadrant I only
 B. Quadrant II only
 C. Quadrant III only
 D. Quadrant I or II only
E. Quadrant I or III only

18. Reggie knows how to make 5 different entrees, 4 different side dishes, and 6 different desserts. How many distinct complete meals, each consisting of an entrée, a side dish, and a dessert, can Reggie make?

F. 16
 G. 26
 H. 72
J. 120
 K. 144

$5 \times 4 \times 6$

19. At a bottling plant, 10,000 liters of carbonated water are needed to produce 3,000 bottles of soda. How many liters of carbonated water are needed to produce 750 bottles of soda?

A. 225
 B. 1,500
C. 2,500
 D. 4,000
 E. 5,000

$\frac{3000}{10,000} = \frac{750}{x}$

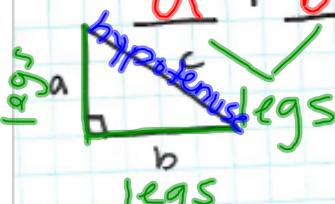
$\frac{3000}{750} = 4$


Jan 8-9:10 AM


TDC Pg 108-108-Pythagorean Theorem

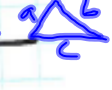
PYTHAGOREAN THEOREM

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



$a^2 + b^2 < c^2$ obtuse 

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

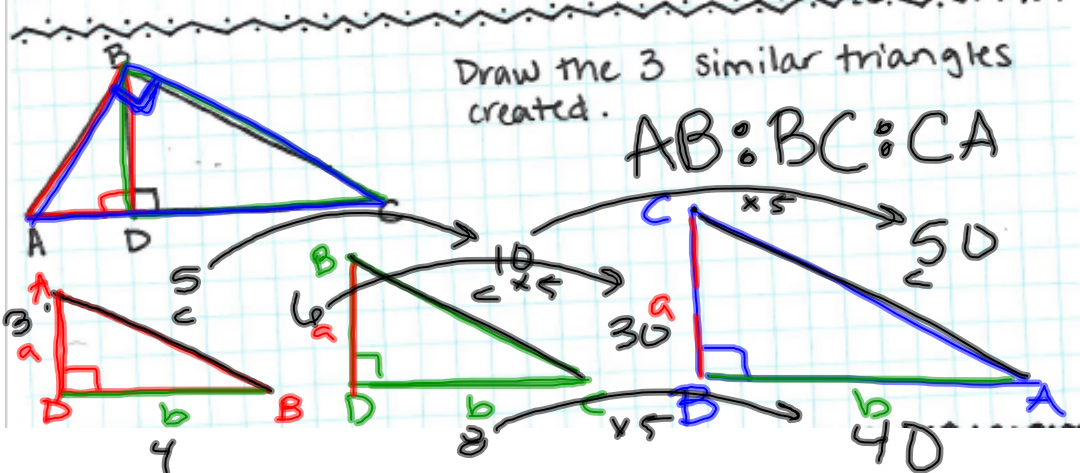
$a^2 + b^2 > c^2$ acute 

hypotenuse
 longest side ALWAYS

Jan 8-9:13 AM

Draw the 3 similar triangles created.

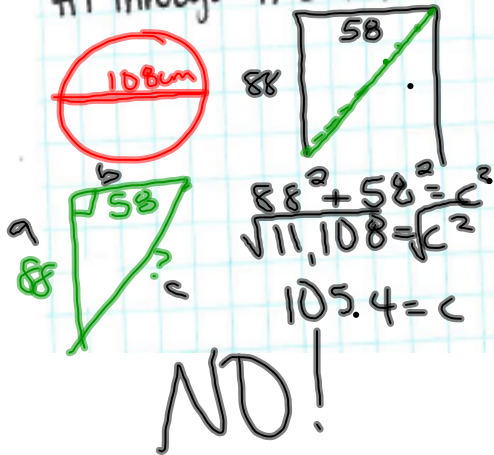
$AB \sim BC \sim CA$



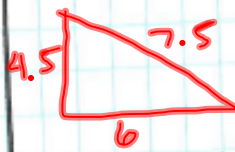
5
 4
 3
 3
 4
 5

Jan 8-9:11 AM

Mrs. Weber bought a circular table for her classroom. The diameter of the table is 108 cm. Her classroom door measures 88 cm tall and 58 cm wide. Will the table fit through the door?



The sides of a Δ are 4.5 in, 7.5 in, and 6 in. Is this a right triangle? If so, which side is the hypotenuse?



$$4.5^2 + 6^2 = 7.5^2$$

$$20.25 + 36 = 56.25$$

$$56.25 = 56.25$$

Yes! $c = 7.5$

Jan 8-9:23 AM

1. Two sides of a right triangle are 8 and 12 in.

a. Find the missing side if these are the lengths of the legs.

$$14.4 \text{ or } 4\sqrt{13}$$

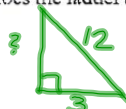
b. Find the missing side if these are the lengths of a leg and hypotenuse.

$$8.9 \text{ or } 4\sqrt{5}$$

2. The foot of a ladder is placed 6 feet from a wall. If the top of the ladder rests 8 feet up on the wall, how long is the ladder?

$$10 \text{ ft}$$

3. The bottom of a ladder must be placed 3 ft. from a wall. The ladder is 12 feet long. How far above the ground does the ladder touch the wall?



$$a^2 + 3^2 = 12^2$$

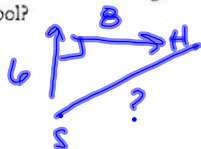
$$a^2 + 9 = 144$$

$$-9 \quad -9$$

$$a^2 = 135$$

$$a = 11.6 \text{ ft} \text{ or } 3\sqrt{15}$$

4. John leaves school to go home. He walks 6 blocks North and then 8 blocks west. How far is John from the school?



$$6^2 + 8^2 = c^2$$

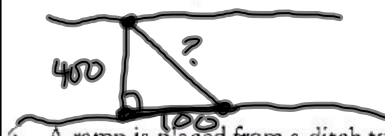
$$36 + 64 = c^2$$

$$\sqrt{100} = \sqrt{c^2}$$

$$c = 10 \text{ blocks}$$

Jan 9-9:06 AM

5. Scott wants to swim across a river that is 400 meters wide. He begins swimming perpendicular to the shore he started from but ends up 100 meters down river from where he started because of the current. How far did he actually swim from his starting point?



$$400^2 + 100^2 = c^2$$

$$169000 + 10000 = c^2$$

$$\sqrt{179000} = c$$

$$c = 412.3$$

6. A ramp is placed from a ditch to a main road 2 ft. above the ditch. If the length of the ramp is 12 ft., how far away is the bottom of the ramp from the road?



$$a^2 + 2^2 = 12^2$$

$$a^2 + 4 = 144$$

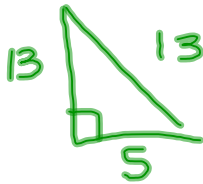
$$-4 \quad -4$$

$$a^2 = 140$$

$$\sqrt{a^2} = \sqrt{140} \text{ or } 2\sqrt{35}$$

$$a = 11.8 \text{ ft}$$

7. A 13 ft. ladder is placed 5 feet away from a wall. The distance from the ground straight up to the top of the wall is 13 ft. Will the ladder reach the top of the wall?



$$5^2 + 13^2 = 13^2$$

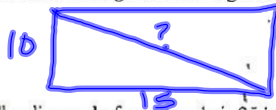
$$25 + 169 = 169$$

$$194 \neq 169$$

NO!

Jan 9-9:07 AM

8. What is the length of the diagonal of a 10 cm by 15 cm rectangle?



$$10^2 + 15^2 = c^2$$

$$100 + 225 = c^2$$

$$\sqrt{325} = c$$

$$c = 5\sqrt{13}$$

$$18.0 = c$$

9. The diagonal of a rectangle is 25 in. The width is 15 in. What is the length?



$$15^2 + b^2 = 25^2$$

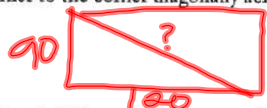
$$225 + b^2 = 625$$

$$-225 \quad -225$$

$$b^2 = 400$$

$$b = 20$$

10. A soccer field is a rectangle 90 meters wide and 120 meters long. The coach asks players to run from one corner to the corner diagonally across. What is this distance?



$$90^2 + 120^2 = c^2$$

$$8100 + 14400 = c^2$$

$$\sqrt{22500} = c$$

$$150 = c$$

11. A baseball diamond is a square with sides of 90 feet. What is the shortest distance, to the nearest tenth of a foot, between first base and third base?



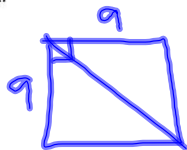
$$90^2 + 90^2 = c^2$$

$$8100 + 8100 = c^2$$

$$\sqrt{16200} = c$$

$$c = 127.3$$

12. The area of a square is 81 square centimeters. First, find the length of a side. Then, find the length of the diagonal.



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

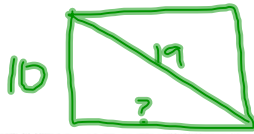
$$81 + 81 = c^2$$

$$\sqrt{162} = c$$

$$c = 12.73 \text{ or } 9\sqrt{2}$$

Jan 9-9:07 AM

13. In a computer catalog, a computer monitor is listed as being 19 inches. This distance is the diagonal distance across the screen. If the screen measures 10 inches in height, what is the actual width of the screen to the nearest inch?



$$10^2 + b^2 = 19^2$$

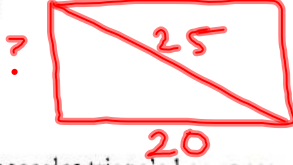
$$100 + b^2 = 361$$

$$\begin{array}{r} -100 \\ \hline b^2 = 261 \end{array}$$

$$\sqrt{b^2} = \sqrt{261}$$

$$b = 16.2$$

14. Donna's TV screen is 20 inches long. If the diagonal measures 25 inches, how long is the width of Donna's TV?



$$a^2 + 20^2 = 25^2$$

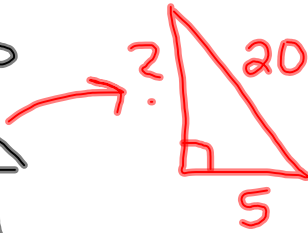
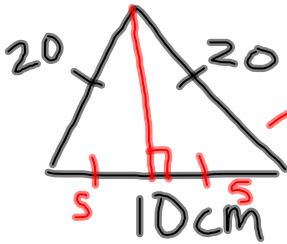
$$a^2 + 400 = 625$$

$$\begin{array}{r} -400 \\ \hline a^2 = 225 \end{array}$$

$$\sqrt{a^2} = \sqrt{225}$$

$$a = 15$$

15. An isosceles triangle has congruent sides of 20 cm. The base is 10 cm. Find the height of the triangle.



$$a^2 + 5^2 = 20^2$$

$$a^2 + 25 = 400$$

$$\begin{array}{r} -25 \\ \hline a^2 = 375 \end{array}$$

$$\sqrt{a^2} = \sqrt{375}$$

$$a = 19.4$$

Jan 9-9:07 AM

$$a^2 + 520^2 = 650^2$$

$$a^2 + 270,400 = 422,500$$

$$\begin{array}{r} -270,400 \\ \hline a^2 = 152,100 \end{array}$$

$$\sqrt{a^2} = \sqrt{152,100}$$

$$a = 390$$

It would need to be

140cm closer.

$$\begin{array}{r} 520 \\ + 80 \\ \hline 600 \end{array}$$

$$\begin{array}{r} 390 \\ - 250 \\ \hline 140 \end{array}$$

Jan 9-12:51 PM

$$a^2 + 600^2 = 650^2$$

$$a^2 + 360,000 = 422,500$$

$$- 360,000$$

$$\sqrt{a^2} = 62500$$

$$a = 250$$

Jan 9-3:53 PM

$(15-2x)^2 + (20+x)^2 = 25^2$
 $(15-2x)(15-2x) + (20+x)(20+x) = 625$
 $225 - 30x - 30x + 4x^2 + 400 + 20x + 20x = 625$
 $5x^2 - 20x + 625 = 625$
 $-625 - 625$
 $5x^2 - 20x = 0$
 $5x(x-4) = 0$
 $5x = 0$
 $x = 0$
 $x - 4 = 0$
 $+4 +4$
 $x = 4$

$20^2 + b^2 = 25^2$
 $400 + b^2 = 625$
 $-400 - 400$
 $b^2 = 225$
 $b = 15$

$BC = 15 - 2x$
 $= 15 - 2(4)$
 $15 - 8$
 $= 7$

Jan 10-12:35 PM

$20^2 + b^2 = 25^2$
 $400 + b^2 = 625$
 $-400 \quad -400$
 $\sqrt{b^2} = \sqrt{225}$
 $b = 15$

$(20+x)^2 + (15-2x)^2 = 25^2$
 $(20+x)(20+x) + (15-2x)(15-2x) = 625$
 $400 + 20x + 20x + x^2 + 225 - 30x - 30x + 4x^2 = 625$
 $5x^2 - 20x + 625 = 625$
 $-625 \quad -625$
 $5x^2 - 20x = 0$
 $5x(x-4) = 0$
 $\frac{5x}{5} = 0 \quad \frac{x-4}{+4} = 0$
 $x = 0 \quad x = 4$

Jan 10-1:34 PM

$3^2 + 1^2 = c^2$
 $9 + 1 = c^2$
 $10 = c^2$
 $\sqrt{10} = c$

$\frac{1h}{2mp} \cdot \frac{\sqrt{10}m}{1} = \frac{\sqrt{10}}{2} = 1.58h$

Swimming 2mph
 Walks 4mph

$\frac{1h}{2m} \cdot \frac{1m}{1} = \frac{1}{2}h$
 $\frac{1h}{4m} \cdot \frac{3m}{1} = \frac{3}{4}h$

$\frac{1}{2}h + \frac{3}{4}h = \frac{5}{4}hrs = 1.25hrs$

Quicker

Jan 10-1:45 PM

$(15-2x)^2 + (20+x)^2 = 25^2$
 $(15-2x)(15-2x) + (20+x)(20+x) = 625$
 $225 - 30x - 30x + 4x^2 + 400 + 20x + 20x + x^2 = 625$
 $5x^2 - 20x + 625 = 625$
 $5x^2 - 20x = 0$
 $5x(x-4) = 0$
 $\frac{5x}{5} = 0 \quad \frac{x-4}{+4+4} = 0$
 $x = 0 \quad x = 4$

$20^2 + b^2 = 25^2$
 $400 + b^2 = 625$
 $-400 \quad -400$
 $b^2 = 225$
 $b = 15$

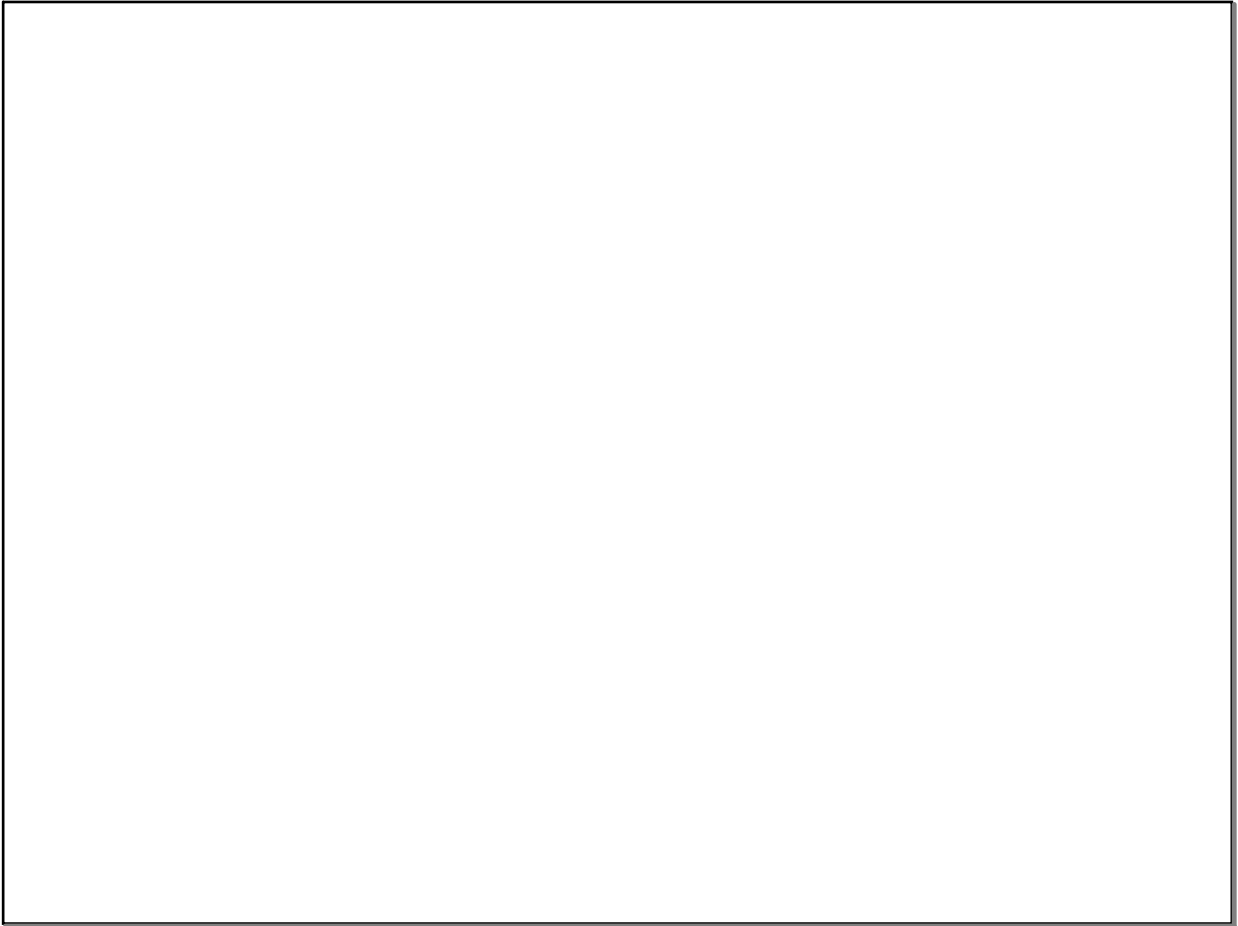
(7)

Jan 10-2:29 PM

$(17-x)^2 + 10^2 = x^2$
 $(17-x)(17-x) + 10^2 = x^2$
 $289 - 17x - 17x + x^2$
 $289 - 34x + x^2 + 10^2 = x^2$
 $289 - 34x + \frac{x^2}{x^2} + 100 = \frac{x^2}{-x^2}$
 $289 - 34x + 100 = 0$
 $-289 \quad -289$
 $-34x - 189$
 $-34 \quad -34$

5.55

Jan 10-3:10 PM



Jan 10-4:02 PM