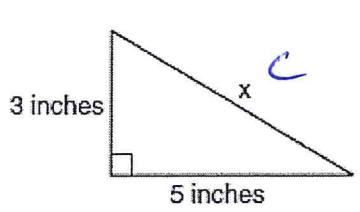


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Date \_\_\_\_\_  
Geometry

## Right Triangles Review Sheet

1. What is the value of  $x$ , in inches, in the right triangle below?



$$3^2 + 5^2 = x^2$$

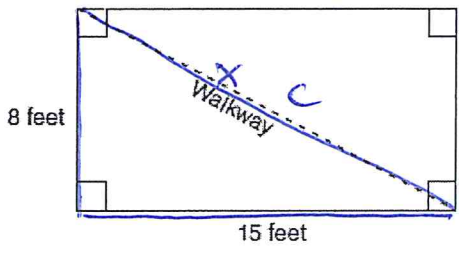
$$9 + 25 = x^2$$

$$\sqrt{34} = \sqrt{x^2}$$

$$\sqrt{34} = x$$

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

2. Nancy's rectangular garden is represented in the diagram below. If a diagonal walkway crosses her garden, what is its length, in feet?



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

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

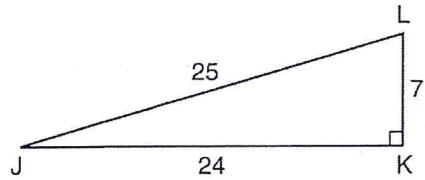
$$64 + 225 = x^2$$

$$\sqrt{289} = \sqrt{x^2}$$

$$\sqrt{289} = x$$

$$x = 17$$

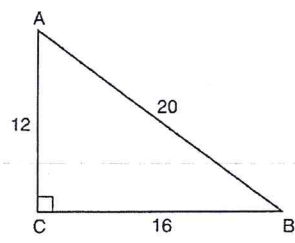
3. In right triangle  $JKL$  in the diagram below,  $KL = 7$ ,  $JK = 24$ ,  $JL = 25$ , and  $\angle K = 90^\circ$ . Which statement is *not* true?



- 1)  $\tan L = \frac{24}{7} \frac{O}{A}$  ✓
- 2)  $\cos L = \frac{24}{25} \frac{A}{H} \frac{7}{25} \times$
- 3)  $\tan J = \frac{7}{24} \frac{O}{A}$  ✓
- 4)  $\sin J = \frac{7}{25} \frac{O}{H}$  ✓

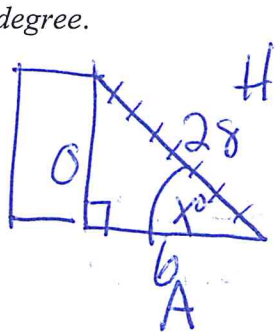
4. In right triangle  $ABC$  shown below,  $AC = 12$ ,  $BC = 16$ , and  $AB = 20$ .

Which equation is *not* correct?



- 1)  $\cos A = \frac{12}{20} \frac{A}{H}$  ✓
- 2)  $\tan A = \frac{16}{12} \frac{O}{A}$  ✓
- 3)  $\sin B = \frac{12}{20} \frac{O}{H}$  ✓
- 4)  $\tan B = \frac{16}{20} \frac{O}{A} \frac{12}{16} \times$

5 A 28-foot ladder is leaning against a house. The bottom of the ladder is 6 feet from the base of the house. Find the measure of the angle formed by the ladder and the ground, to the nearest degree.



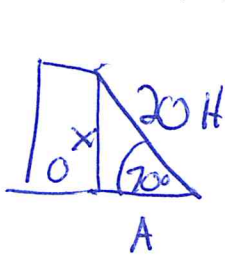
$$\cos \theta = \frac{A}{H}$$

$$\cos^{-1} \cos x = \frac{6}{28}$$

$$x = \cos^{-1} \frac{6}{28}$$

$$x = 78^\circ$$

6. A 20-foot support post leans against a wall, making a 70° angle with the ground. To the nearest tenth of a foot, how far up the wall will the support post reach?



$$\sin \theta = \frac{O}{H}$$

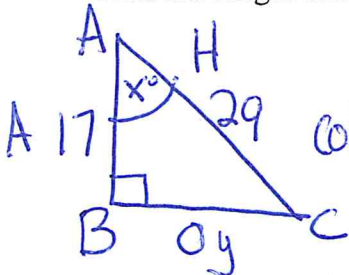
$$\sin 70 = \frac{x}{20}$$

$$.9397 \cdot x = 20$$

$$x = 18.8$$

7. In right triangle ABC shown below, AC = 29 inches, AB = 17 inches, and m∠ABC = 90. Find the number of degrees in the measure of angle BAC, to the nearest degree.

Find the length of BC to the nearest inch.



$$\cos \theta = \frac{A}{H}$$

$$\cos^{-1} \cos x = \frac{17}{29}$$

$$x = \cos^{-1} \left( \frac{17}{29} \right)$$

$$x = 54^\circ$$

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

$$17^2 + y^2 = 29^2$$

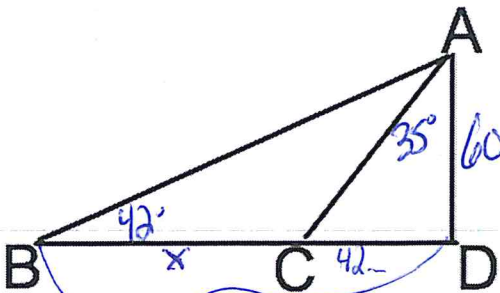
$$289 + y^2 = 841$$

$$-289 \quad -289$$

$$y^2 = 552$$

$$y = 23.3$$

8. In the diagram below, m∠CAD = 35, m∠ABD = 42, and mAD = 60. Find to the nearest tenth, mBC.



$$66 - 42 = 24.6$$

$$\tan \theta = \frac{O}{A}$$

$$\tan 42 = \frac{60}{x}$$

$$\cdot 9004 = \frac{60}{x}$$

$$\cdot 9004 x = 60$$

$$\cdot 9004 \quad \cdot 9004$$

$$x = 66.6$$

$$\tan \theta = \frac{O}{A}$$

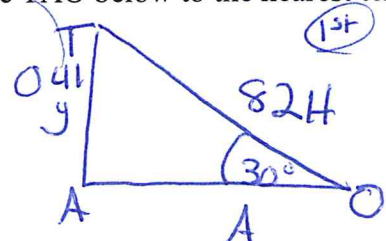
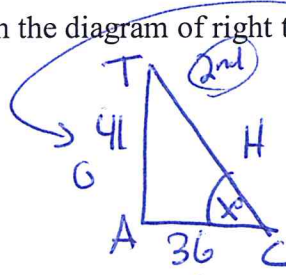
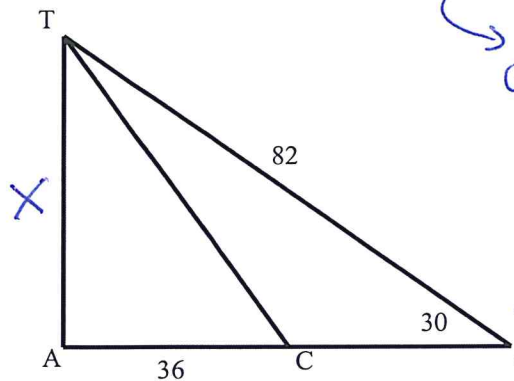
$$\tan 35 = \frac{y}{60}$$

$$\cdot 7002 = \frac{y}{60}$$

$$\cdot 7002 \quad \cdot 7002$$

$$y = 42$$

9. Find the measure of  $\angle TCA$  in the diagram of right triangle TAO below to the nearest tenth of a degree.



$\tan \theta = \frac{41}{36}$   
 $\tan^{-1} \frac{41}{36}$   
 $x = \tan^{-1} \frac{41}{36}$   
 $x = 48.7^\circ$

$\sin \theta = \frac{41}{82}$   
 $\sin 30 = \frac{41}{82}$   
 $y = 41$

10. If  $\sin(x+15) = \cos 45$ , determine the value of  $x$ .

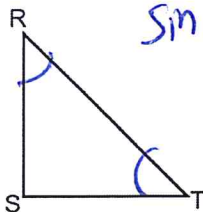
$\sin A = \cos B$   
 $A + B = 90$   
 $x + 15 + 45 = 90$   
 $x + 60 = 90$   
 $-60 \quad -60$   
 $x = 30$

11. If  $\sin(2x+7) = \cos(4x-7)$ , what is the value of  $x$ ?

$\sin A = \cos B$   
 $A + B = 90$   
 $2x + 7 + 4x - 7 = 90$   
 $6x = 90$   
 $x = 15$

12. In right triangle RST shown below, which of the following must be true?

- I:  $\sin R = \cos S$  ✓
- II:  $\cos T = \sin R$  ✓
- III:  $\sin T = \cos R$  ✓
- IV:  $\tan R = \tan S$  ✗



$\sin A = \cos B$

- 1) I and IV
- 2) II and III
- 3) I, II, and III
- 4) III only

13. In right triangle ABC with the right angle at C,  $\sin A = 2x + 0.1$  and  $\cos B = 4x - 0.7$ . Determine and state the value of  $x$ . Explain your answer.

$\sin A = \cos B$  The sine of one acute angle in a right triangle is equal to cosine of the other.  
 $2x + 0.1 = 4x - 0.7$   
 $-2x \quad -2x$   
 $0.1 = 2x - 0.7$   
 $+0.1 \quad +0.1$   
 $0.2 = 2x$   
 $0.1 = x$

