

GEOMETRY

Exam 7

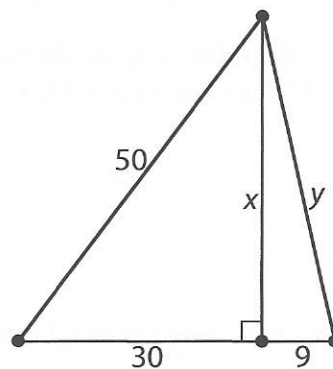
Based on Chapter 7 (pages 430 - 501) in your textbook.

Student's Name _____ Student Number _____

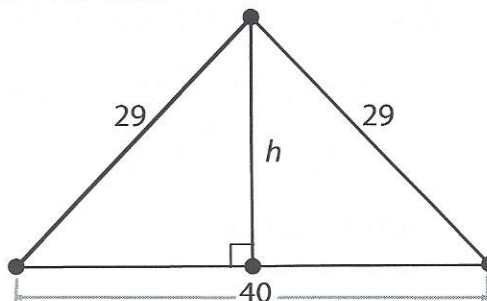
Street _____ City _____ State _____ Zip Code _____

BE SURE YOU FULLY UNDERSTAND ALL CHECKPOINT PROBLEMS FROM THIS CHAPTER BEFORE YOU COMPLETE THIS EXAM. **SHOW AS MUCH WORK AS POSSIBLE.**

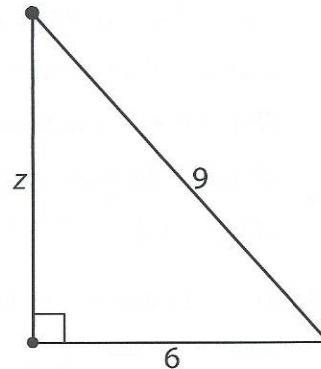
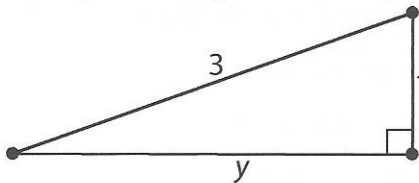
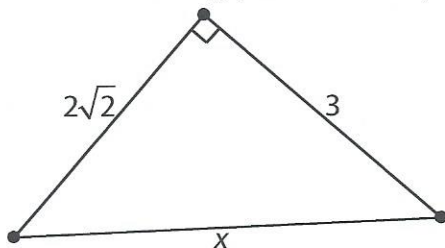
1. Solve for the lengths x and y . $x = \underline{\hspace{1cm}}$, $y = \underline{\hspace{1cm}}$



2. Find the area of an isosceles triangle with 29 ft legs and 40 ft base.



3. Solve for x , y , and z . Write your answers in simplest radical form.



4. Show if the segment lengths form a triangle, and if they do, indicate whether the triangle is acute, right, or obtuse.
- a) 16, 30, 34 _____ b) 4, 5, 6 _____
- c) 7, 24, 26 _____ d) 14, 21, 36 _____
5. The sides of an acute triangle are x , 35, and 37, where x is the shortest side. Find the range of possible values for x and express it as an inequality.

Items 6-8: Use the diagram to the right.

6. Complete the following:

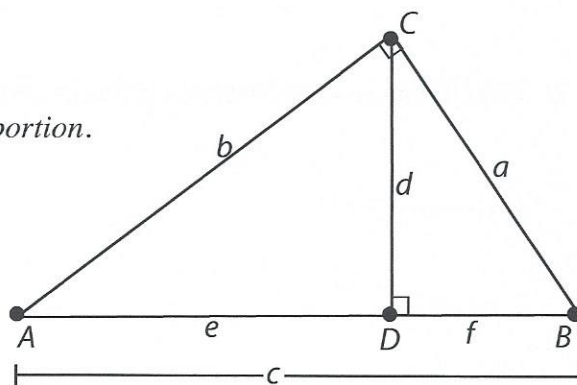
Hint: Corresponding sides are in the same proportion.

$$\triangle ABC \sim \triangle ACD, \triangle ABC \sim \triangle CBD$$

$$\frac{a}{d} = \frac{b}{e} = \frac{c}{b}, \quad \frac{a}{f} = \frac{d}{e} = \frac{c}{a}$$

$$\triangle CBD \sim \triangle ACD$$

$$\frac{a}{b} = \frac{d}{e} = \frac{c}{a}$$



7. Circle the following statement that is NOT true.

- (A) d is the geometric mean of e and f .
 (B) a is the geometric mean of c and f .
 (C) b is the geometric mean of e and c .
 (D) $a^2 + b^2 = e^2 + f^2$

8. If $e = 16$ and $f = 9$, solve for lengths a , b , c , and d .

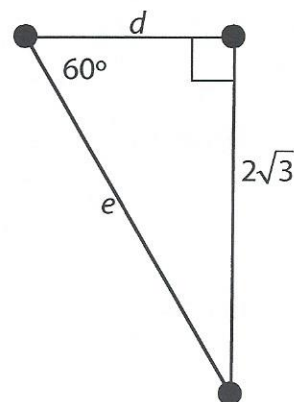
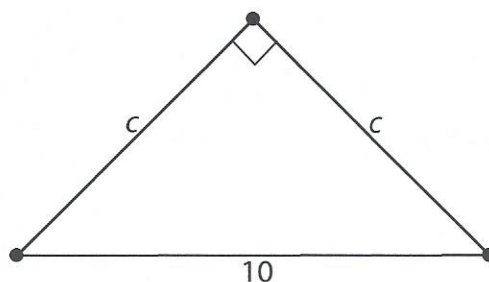
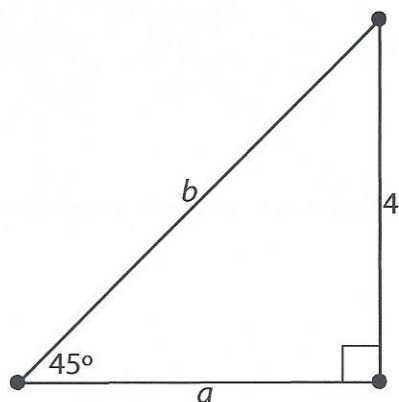
$$a = \underline{\hspace{2cm}}, \quad b = \underline{\hspace{2cm}}, \quad c = \underline{\hspace{2cm}}, \quad d = \underline{\hspace{2cm}}$$

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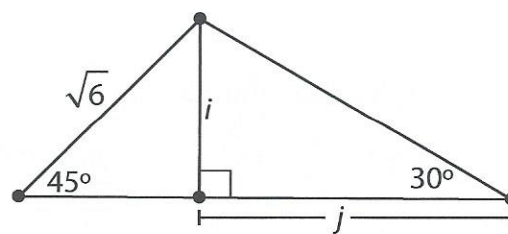
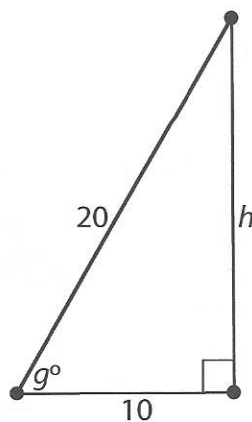
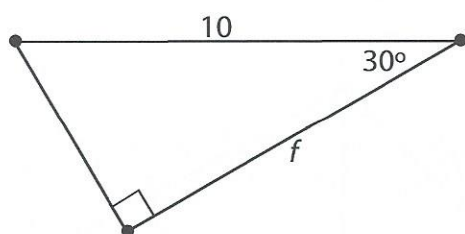
9. Solve for the values of a through j .



$a = \underline{\hspace{2cm}}$, $b = \underline{\hspace{2cm}}$

$c = \underline{\hspace{2cm}}$

$d = \underline{\hspace{2cm}}$, $e = \underline{\hspace{2cm}}$



$f = \underline{\hspace{2cm}}$

$g = \underline{\hspace{2cm}}$, $h = \underline{\hspace{2cm}}$

$i = \underline{\hspace{2cm}}$, $j = \underline{\hspace{2cm}}$

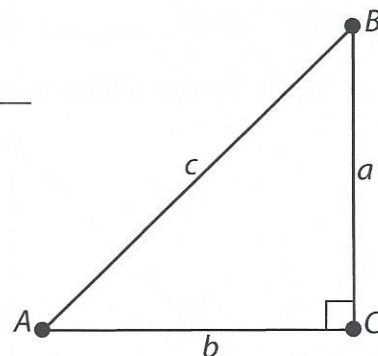
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10. Complete the following list:

$$\sin A = \frac{a}{c} \quad \sin B = \underline{\hspace{2cm}} \quad m\angle A + m\angle B = \underline{\hspace{2cm}}$$

$$\cos A = \underline{\hspace{2cm}} \quad \cos B = \underline{\hspace{2cm}} \quad a^2 + b^2 = \underline{\hspace{2cm}}$$

$$\tan A = \underline{\hspace{2cm}} \quad \tan B = \underline{\hspace{2cm}}$$



11. Circle the statement we can conclude from the information above.

(A) $\sin A = \cos B$

(B) $\cos A = \sin (90 - A)$

(C) $\sin^2 B + \cos^2 B = 1$

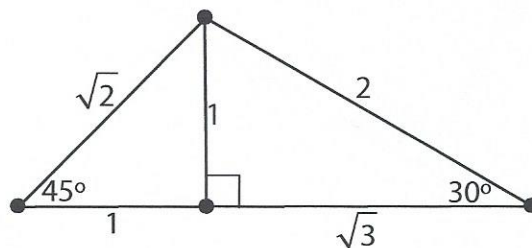
(D) All of these.

12. Complete the following list:

$$\sin 45^\circ = \frac{1}{\sqrt{2}} = \frac{\sqrt{2}}{2} \quad \sin 30^\circ = \underline{\hspace{2cm}}$$

$$\cos 45^\circ = \underline{\hspace{2cm}} \quad \cos 30^\circ = \underline{\hspace{2cm}}$$

$$\tan 45^\circ = \underline{\hspace{2cm}} \quad \tan 30^\circ = \underline{\hspace{2cm}}$$



13. Circle the item below that is equal to $\sqrt{3}$.

(A) $\sin 60^\circ$ (B) $\tan 60^\circ$ (C) $\cos 60^\circ$ (D) $\tan^{-1} \frac{\sqrt{3}}{3}$

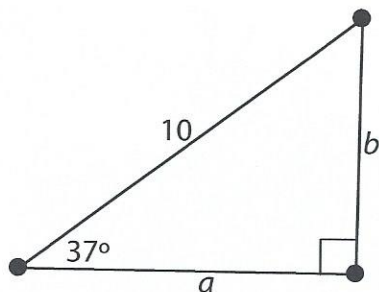
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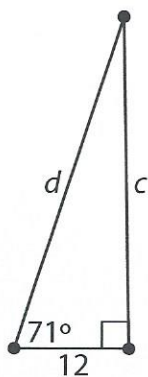
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Items 14-16: Solve for side lengths a through f . Round values to nearest whole number.

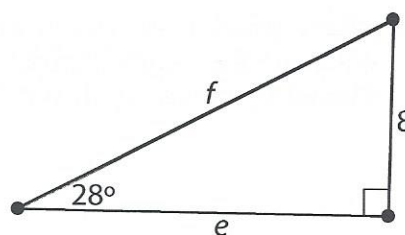
14.



15.



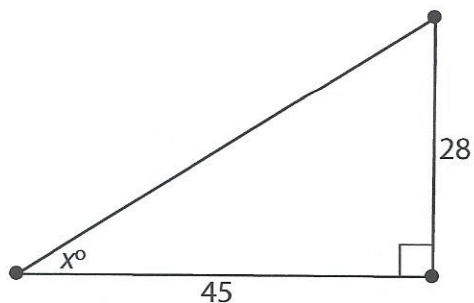
16.



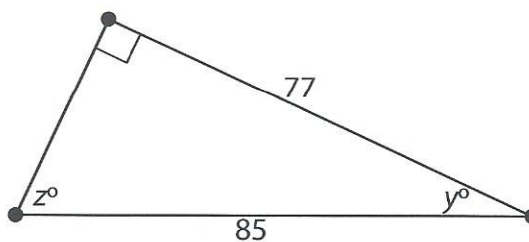
$a \approx$ _____, $b \approx$ _____, $c \approx$ _____, $d \approx$ _____, $e \approx$ _____, $f \approx$ _____

Items 17-18: Solve for x , y , and z . Round values to nearest whole number.

17.



18.



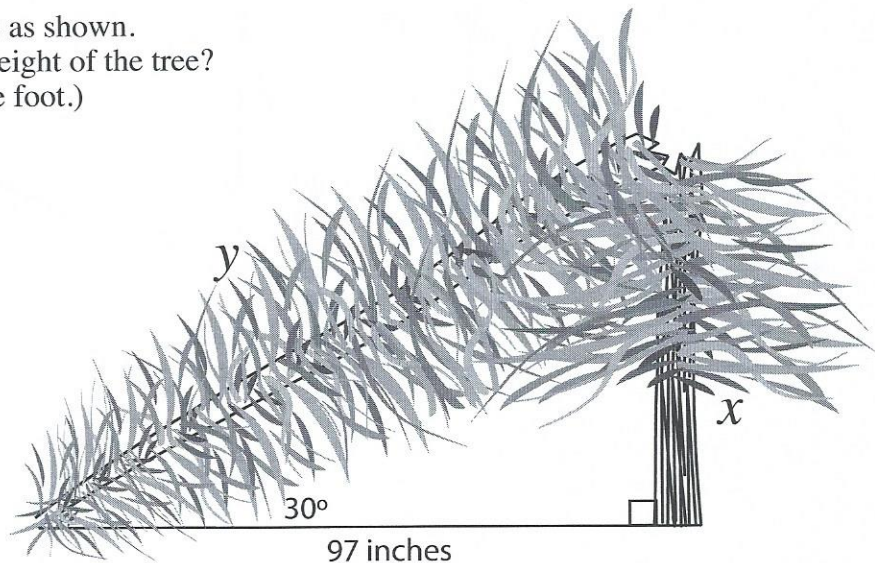
$x \approx$ _____

$y \approx$ _____, $z \approx$ _____

(over)

19. Indicate whether the following statement is true or false by circling the appropriate letter.
 T F The Law of Sines and Law of Cosines can only be used to find angle and side measures in a right triangle.

20. After a storm, a tree lies as shown.
 What was the original height of the tree?
 (Round to nearest whole foot.)



FILL IN YOUR NAME AND THE OTHER REQUIRED INFORMATION ON EACH PAGE OF THE EXAM AND MAIL THE EXAM TO AMERICAN SCHOOL.