Final Review WS - Chapter 8

8.1

Find the geometric mean of each pair of numbers. If necessary, give the answer in simplest radical form.

3. 3 and 27

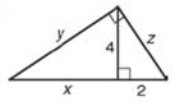
4. 9 and 16

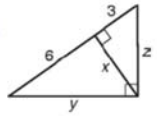
5. 4 and 5

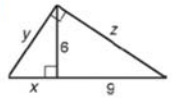
6. 8 and 12

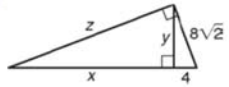
8.1

Find *x*, *y*, and *z*.

7. 

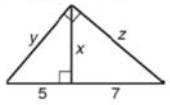
8. 

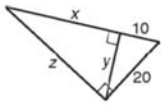
9. 

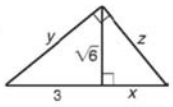
10. 

8.1

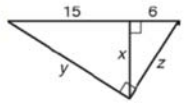
Find *x*, *y*, and *z*.

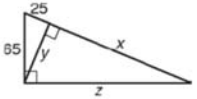
10. 

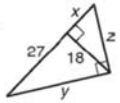
11. 

12. 

8.1

13. 

14. 

15. 

8.2

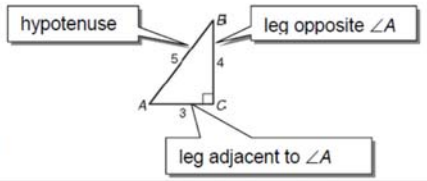
Just some reminders

Trigonometric Ratios

$$\sin A = \frac{\text{leg opposite } \angle A}{\text{hypotenuse}} = \frac{4}{5} = 0.8$$

$$\cos A = \frac{\text{leg adjacent to } \angle A}{\text{hypotenuse}} = \frac{3}{5} = 0.6$$

$$\tan A = \frac{\text{leg opposite } \angle A}{\text{leg adjacent to } \angle A} = \frac{4}{3} \approx 1.33$$



You can use a calculator to find the value of trigonometric ratios.

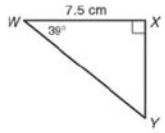
$\cos 38^\circ \approx 0.7880107536$ or about 0.79

You can use trigonometric ratios to find side lengths of triangles.

Find *WY*.

$\cos W = \frac{\text{adjacent leg}}{\text{hypotenuse}}$ Write a trigonometric ratio that involves *WY*.

$\cos 39^\circ = \frac{7.5 \text{ cm}}{WY}$ Substitute the given values.

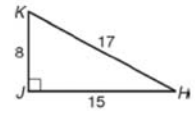


$WY = \frac{7.5}{\cos 39^\circ}$ Solve for *WY*.

$WY \approx 9.65$ cm Simplify the expression.

8.2

Write each trigonometric ratio as a fraction and as a decimal rounded to the nearest hundredth.



1. sin *K* _____

2. cos *H* _____

3. cos *K* _____

4. tan *H* _____

Use your calculator to find each trigonometric ratio. Round to the nearest hundredth.

9. sin 42° _____

10. cos 89° _____

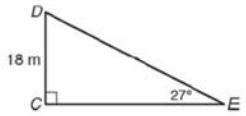
11. tan 55° _____

12. sin 6° _____

8.2

Find each length. Round to the nearest hundredth.

13. *DE*



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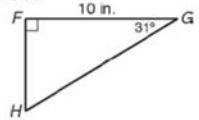
14. *FH*



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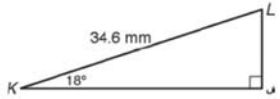
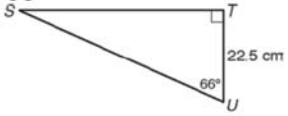
15. *JK*



_____

16. *US*



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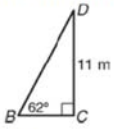
8.2

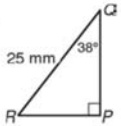
Use a calculator and trigonometric ratios to find each length. Round to the nearest hundredth.

10.



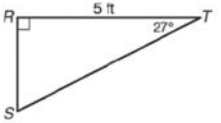
BD _____

11.



QP _____

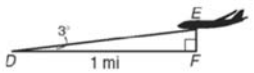
12.



RS _____

8.2

13. The glide slope is the path a plane uses while it is landing on a runway. The glide slope usually makes a 3° angle with the ground. A plane is on the glide slope and is 1 mile (5280 feet) from touchdown. Use the tangent ratio and a calculator to find *EF*, the plane's altitude, to the nearest foot.



_____

8.3

Use your calculator to find each angle measure to the nearest degree.

5. $\sin^{-1}(0.8)$

_____

6. $\cos^{-1}(0.19)$

_____

7. $\tan^{-1}(3.4)$

_____

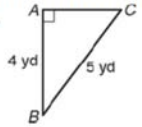
8. $\sin^{-1}\left(\frac{1}{5}\right)$

_____

8.3

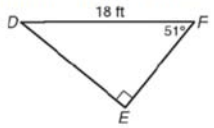
Use a calculator and inverse trigonometric ratios to find the unknown side lengths and angle measures. Round lengths to the nearest hundredth and angle measures to the nearest degree.

16.



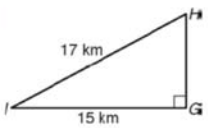
$AC =$ _____
$m\angle B =$ _____
$m\angle C =$ _____

17.



$DE =$ _____
$EF =$ _____
$m\angle D =$ _____

18.

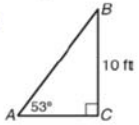


$GH =$ _____
$m\angle H =$ _____
$m\angle I =$ _____

8.3

Find the unknown measures. Round lengths to the nearest hundredth and angle measures to the nearest degree.

9.



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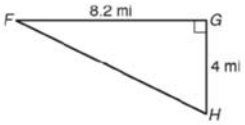
10.



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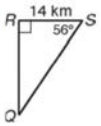
11.



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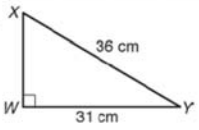
12.



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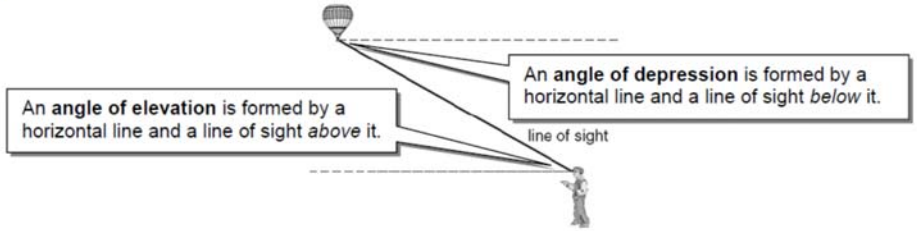
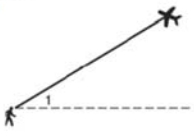
8.4



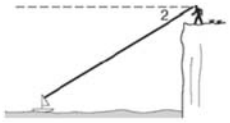
Classify each angle as an angle of elevation or an angle of depression.

1. $\angle 1$



_____

2. $\angle 2$



_____

8.4

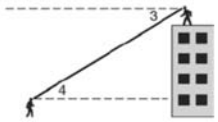
Use the figure for Exercises 3 and 4. Classify each angle as an angle of elevation or an angle of depression.

3. ∠3

_____

4. ∠4

_____



Use the figure for Exercises 5–8. Classify each angle as an angle of elevation or an angle of depression.

5. ∠1

_____

6. ∠2

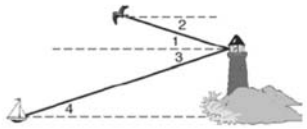
_____

7. ∠3

_____

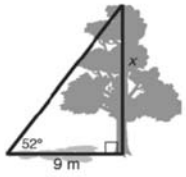
8. ∠4

_____



8.4

9. When the angle of elevation to the sun is 52°, a tree casts a shadow that is 9 meters long. What is the height of the tree? Round to the nearest tenth of a meter.



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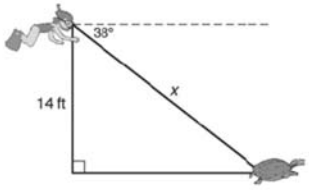
10. A person snorkeling sees a turtle on the ocean floor at an angle of depression of 38°. She is 14 feet above the ocean floor. How far from the turtle is she? Round to the nearest foot.



_____

8.4

11. Jared is standing 12 feet from a rock-climbing wall. When he looks up to see his friend ascend the wall, the angle of elevation is 56°. How high up the wall is his friend? Round to the nearest foot.

_____

12. Maria is looking out a 17-foot-high window and sees two deer. The angle of depression to the deer is 26°. What is the horizontal distance from Maria to the deer? Round to the nearest foot.

_____

8.4

To attract customers to his car dealership, Frank tethers a large red balloon to the ground. In Exercises 5–7, give answers in feet and inches to the nearest inch. (*Note:* Assume the cord that attaches to the balloon makes a straight segment.)

5. The sun is directly overhead. The shadow of the balloon falls 14 feet 6 inches from the tether. Frank sights an angle of elevation of 67°. Find the height of the balloon.

_____

6. Find the length of the cord that tethers the balloon.

_____

7. The wind picks up and the angle of elevation changes to 59°. Find the height of the balloon.

_____