**10.4 Tangent Ratio**

**Goal: Use the tangent ratio to find missing sides of right triangles.**

**Trigonometric ratio:** a ratio of the lengths of two sides of a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ triangle

|  |
| --- |
| **Tangent Ratio** |
| tan = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |

**Find tan D and tan E as fractions.**

a) tan D = \_\_\_\_\_\_ b) tan D = \_\_\_\_\_\_

 tan E = \_\_\_\_\_\_ tan E = \_\_\_\_\_\_

c) tan D = \_\_\_\_\_\_ d) tan D = \_\_\_\_\_\_

 tan E = \_\_\_\_\_\_ tan E = \_\_\_\_\_\_



**Use a calculator to approximate the value to two decimal places.**

a) $\tan(34°)$ b) $\tan(71°)$ c) $\tan(45°)$ d) $\tan(20°)$

**Use the tangent ratio to find the value of x. Round to the nearest tenth.**

a) x = \_\_\_\_\_\_\_ b) x = \_\_\_\_\_\_\_ c) x = \_\_\_\_\_\_\_

d) x = \_\_\_\_\_\_\_ e) x = \_\_\_\_\_\_\_ f) x = \_\_\_\_\_\_\_

**10.5 Sine and Cosine Ratios**

**Goal: Use the sine and cosine ratios to find missing sides of right triangles.**

|  |  |
| --- | --- |
| **Sine Ratio** | **Cosine Ratio** |
| sin = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | cos = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |

**To remember the trigonometric ratios, just remember \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Find the indicated ratios. Write your answer as fractions.**

a) sin A = \_\_\_\_\_\_\_ sin B = \_\_\_\_\_\_\_ b) sin A = \_\_\_\_\_\_\_ sin B = \_\_\_\_\_\_\_

 cos A = \_\_\_\_\_\_\_ cos B = \_\_\_\_\_\_\_ cos A = \_\_\_\_\_\_\_ cos B = \_\_\_\_\_\_\_



c) sin D = \_\_\_\_\_\_\_ sin E = \_\_\_\_\_\_\_ d) sin A = \_\_\_\_\_\_\_ sin B = \_\_\_\_\_\_\_

 cos D = \_\_\_\_\_\_\_ cos E = \_\_\_\_\_\_\_ cos A = \_\_\_\_\_\_\_ cos B = \_\_\_\_\_\_\_



**Use a calculator to approximate the value to two decimal places.**

a) $\sin(33°)$ b) $\cos(33°)$ c) $\sin(8°)$ d) $\cos(67°)$

e) $\sin(85°)$ f) $\cos(13°)$ g) $\sin(0°)$ h) $\cos(0°)$

**Find the value of x. Round to the nearest tenth.**

a) x = \_\_\_\_\_\_\_ b) x = \_\_\_\_\_\_\_ c) x = \_\_\_\_\_\_\_



d) x = \_\_\_\_\_\_\_ e) x = \_\_\_\_\_\_\_ f) x = \_\_\_\_\_\_\_



**Find the lengths of the legs of the triangle. Round your answers to the nearest tenth.**

a) x = \_\_\_\_\_\_\_ y = \_\_\_\_\_\_\_ b) x = \_\_\_\_\_\_\_ y = \_\_\_\_\_\_\_ c) x = \_\_\_\_\_\_\_ y = \_\_\_\_\_\_\_



**10.6 Solving Right Triangles – Day 1**

**Goal: Use inverse trigonometric functions to find missing angles**

**Inverse tangent**: a function available on a calculator as $tan^{-1}x$, which can be used to find the measure of an \_\_\_\_\_\_\_\_\_\_\_\_ when you know the \_\_\_\_\_\_\_\_\_\_\_\_\_\_ of the angle

**Inverse sine**: a function available on a calculator as $sin^{-1}x$, which can be used to find the measure of an \_\_\_\_\_\_\_\_\_\_\_\_ when you know the \_\_\_\_\_\_\_\_\_\_\_\_\_\_ of the angle

**Inverse cosine**: a function available on a calculator as $cos^{-1}x$, which can be used to find the measure of an \_\_\_\_\_\_\_\_\_\_\_\_ when you know the \_\_\_\_\_\_\_\_\_\_\_\_\_\_ of the angle

|  |
| --- |
|  **To find missing sides we use: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_****To find missing angles we use: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** |

$∠A$**is an acute angle. Use a calculator to approximate the measure of** $∠A$**to the nearest degree.**

a) $\tan(A=3.5)$ b) $\tan(A=2)$ c) $\tan(A= 0.4402)$

 $m∠A= \\_\\_\\_\\_\\_\\_\\_$ $m∠A= \\_\\_\\_\\_\\_\\_\\_$ $m∠A= \\_\\_\\_\\_\\_\\_\\_$

d) $\sin(A=0.5)$ e) $\cos(A=0.92)$ f) $\sin(A)=0.1149$

 $m∠A= \\_\\_\\_\\_\\_\\_\\_$ $m∠A= \\_\\_\\_\\_\\_\\_\\_$ $m∠A= \\_\\_\\_\\_\\_\\_\\_$

g) $\cos(A=\frac{2.4}{4})$ h) $\cos(A=\frac{15}{17})$ i) $\tan(A)=\frac{11}{7}$

 $m∠A= \\_\\_\\_\\_\\_\\_\\_$ $m∠A= \\_\\_\\_\\_\\_\\_\\_$ $m∠A= \\_\\_\\_\\_\\_\\_\\_$

**Use the inverse trigonometry functions to find the measure of each missing angle. Round to the nearest degree.**

a) $m∠A=\\_\\_\\_\\_\\_\\_\\_\\_$ $m∠B=\\_\\_\\_\\_\\_\\_\\_\\_$ b) $m∠A=\\_\\_\\_\\_\\_\\_\\_\\_$ $m∠B=\\_\\_\\_\\_\\_\\_\\_\\_$



c) $m∠A=\\_\\_\\_\\_\\_\\_\\_\\_$ $m∠B=\\_\\_\\_\\_\\_\\_\\_\\_$ d) $m∠A=\\_\\_\\_\\_\\_\\_\\_\\_$ $m∠B=\\_\\_\\_\\_\\_\\_\\_\\_$





e) $m∠A=\\_\\_\\_\\_\\_\\_\\_\\_$ $m∠B=\\_\\_\\_\\_\\_\\_\\_\\_$ f) $m∠A=\\_\\_\\_\\_\\_\\_\\_\\_$ $m∠B=\\_\\_\\_\\_\\_\\_\\_\\_$





**10.6 Solving Right Triangles – Day 2**

**Goal: Use inverse trigonometric functions to solve right triangles.**

**Solve a right triangle:** to find the measures of both acute \_\_\_\_\_\_\_\_\_\_\_ and all three \_\_\_\_\_\_\_\_\_\_\_\_

**Solve the right triangle. Find all missing sides and angles. Round sides to the nearest tenth and angles to the nearest degree.**

a) x = \_\_\_\_\_\_ $m∠A= \\_\\_\\_\\_\\_\\_\\_\\_$ $m∠B= \\_\\_\\_\\_\\_\\_\\_\\_$ b) a = \_\_\_\_\_\_ $m∠A= \\_\\_\\_\\_\\_\\_\\_\\_$ $m∠B= \\_\\_\\_\\_\\_\\_\\_\\_$





c) y = \_\_\_\_\_\_ $m∠D= \\_\\_\\_\\_\\_\\_\\_\\_$ $m∠E= \\_\\_\\_\\_\\_\\_\\_\\_$ d) z = \_\_\_\_\_\_ $m∠G= \\_\\_\\_\\_\\_\\_\\_\\_$ $m∠H= \\_\\_\\_\\_\\_\\_\\_\\_$



e) c = \_\_\_\_\_\_ $m∠A= \\_\\_\\_\\_\\_\\_\\_\\_$ $m∠B= \\_\\_\\_\\_\\_\\_\\_\\_$ f) b = \_\_\_\_\_\_ $m∠A= \\_\\_\\_\\_\\_\\_\\_\\_$ $m∠B= \\_\\_\\_\\_\\_\\_\\_\\_$