Name: Key Date: _____ HR: _____

Trigonometry REVIEW 2021 Warm-Up!

1. Name the three trigonometric ratios that we have studied.

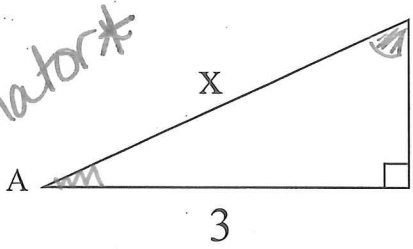
Sin , cos , tan

2. Name one way you remember the ratios.

Soh Can Toa

3. Write the trigonometric ratios for the triangle below. Use the Pythagorean Theorem to find each exact length of the missing side. Simplify each radical or fraction if needed.

must rationalize the denominator



$2^2+3^2=x^2$
$4+9=x^2$
$\sqrt{13}=x$

X= $\sqrt{13}$

sin ∠A = $\frac{2}{\sqrt{13}}=\frac{2\sqrt{13}}{13}$ cos ∠A = $\frac{3}{\sqrt{13}}=\frac{3\sqrt{13}}{13}$ tan ∠A = $\frac{2}{3}$

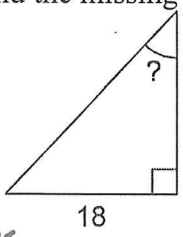
$\frac{2}{\sqrt{13}}\cdot\frac{\sqrt{13}}{\sqrt{13}}=\frac{2\sqrt{13}}{13}$ $\frac{3}{\sqrt{13}}\cdot\frac{\sqrt{13}}{\sqrt{13}}=\frac{3\sqrt{13}}{13}$

sin ∠B = $\frac{3\sqrt{13}}{13}$ cos ∠B = $\frac{2\sqrt{13}}{13}$ tan ∠B = $\frac{3}{2}$

$\frac{3}{\sqrt{13}}$ $\frac{2}{\sqrt{13}}$ Tenth

Find the missing angle measures.

2.

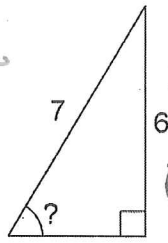


$\tan\theta=\frac{18}{19}$ $\theta=\tan^{-1}\left(\frac{18}{19}\right)$

43.45

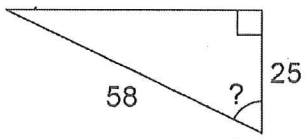
? = 43.5°

3.



$\sin\theta=\frac{6}{7}$ $\theta=\sin^{-1}\left(\frac{6}{7}\right)$

? = 59.0°
58.99

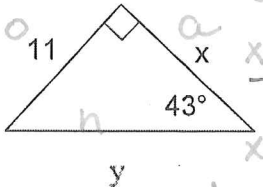


$\cos\theta=\frac{25}{58}$

? = 64.5°
64.46

Find the missing sides.

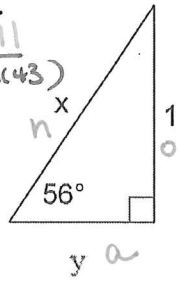
5.



$\sin(43)=\frac{11}{y}$ $\tan(43)=\frac{11}{x}$ $x\tan(43)=11$ $x=11.8$

x = 11.8 y = 16.1
11.79 16.12

6.

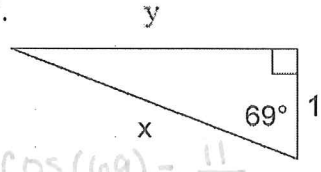


Kids try

$\sin(56)=\frac{11}{x}$ $x\approx 13.26$ $\tan(56)=\frac{11}{y}$ $y=7.41$

x = 13.3 y = 7.4

7.



$\cos(69)=\frac{11}{x}$ $\tan(69)=\frac{y}{11}$

x = 30.7 y = 28.7
30.109 28.65

Directions: Find the ratios. Your final answers should be in EXACT VALUES, with simplified fractions and simplified radicals. NO Decimals

8. In a right triangle with acute angle θ, $\sin\theta = \frac{40}{41}$. Find tanθ and cosθ.

Find a
$a^2+40^2=41^2$
$a=\sqrt{81}$
$a=9$

$\tan\theta=\frac{o}{a}=\frac{40}{9}$ $\quad$ $\tan\theta=\frac{40}{9}$

$\cos\theta=\frac{a}{h}=\frac{9}{41}$ $\quad$ $\cos\theta=\frac{9}{41}$

9. In a right triangle with acute angle θ, $\tan\theta = \frac{\sqrt{3}}{3}$. Find cosθ and $\sin\theta$.

Find h
$3^2+\sqrt{3}^2=h^2$
$9+3=h^2$
$\sqrt{12}=h$
$\sqrt{4}\cdot\sqrt{3}=h$
$h=2\sqrt{3}$

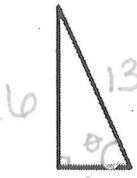
$\cos\theta=\frac{a}{h}=\frac{3}{2\sqrt{3}}\cdot\frac{\sqrt{3}}{\sqrt{3}}=\frac{3\sqrt{3}}{2\cdot3}=\frac{3\sqrt{3}}{6}=\frac{\sqrt{3}}{2}$

$\cos\theta=\frac{\sqrt{3}}{2}$

$\sin\theta=\frac{o}{h}=\frac{\sqrt{3}}{2\sqrt{3}}$

$\sin\theta=\frac{1}{2}$

10. In a right triangle with acute angle θ, $\sin\theta=\frac{6}{13}$. Find tanθ and cosθ.



$a^2+6^2=13^2$
$a=\sqrt{133}$

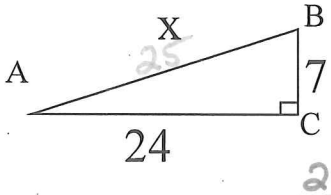
$\tan\theta=\frac{o}{a}=\frac{6}{\sqrt{133}}\cdot\frac{\sqrt{133}}{\sqrt{133}}=\frac{6\sqrt{133}}{\sqrt{17689}}=\frac{6\sqrt{133}}{133}$

$\tan\theta=\frac{6\sqrt{133}}{133}$

$\cos\theta=\frac{\sqrt{133}}{13}$

In-Class Practice:

1. Consider the triangle ABC, shown below. Use the Pythagorean Theorem to find the missing side. Then find all trig ratios below and simplify all answers.



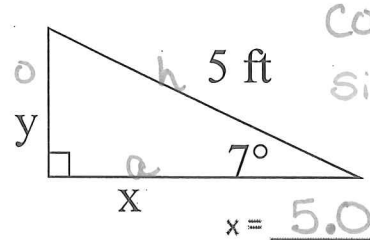
$x^2=7^2+24^2$
$\sqrt{625}$
$\sqrt{165}$

X= 25

sin ∠A = $\frac{7}{25}$ $\quad$ cos ∠A = $\frac{24}{25}$ $\quad$ tan ∠B = $\frac{24}{7}$ $\quad$ cos ∠B = $\frac{7}{25}$

Find each variable and round to the nearest tenth. Show WORK!!!

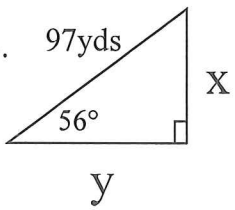
2.



$\cos 7=\frac{x}{5}$
$\sin 7=\frac{y}{5}$

x = 5.0ft (4.96) y = 0.6ft (0.60)

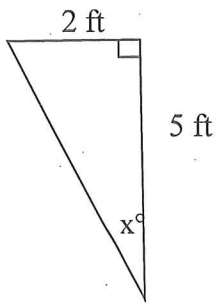
3.



$\sin 56=\frac{x}{97}$
$x=80.41$
$\cos 56=\frac{y}{97}$

x = 80.4yd y = 54.2yds (54.249)

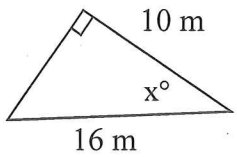
4.



$\tan^{-1}\left(\frac{2}{5}\right)$

x = 21.8°

5.



$\cos^{-1}\left(\frac{10}{16}\right)$

x = 51.3°

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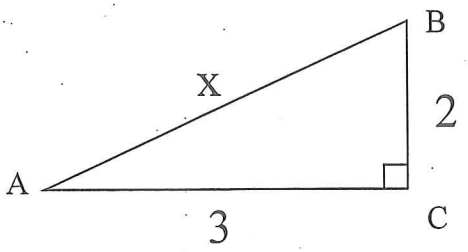


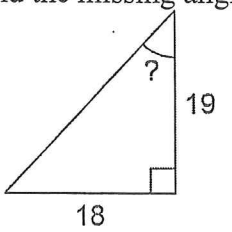
X= _____

sin ∠ A = _____ cos ∠ A = _____ tan ∠ A = _____

sin ∠ B = _____ cos ∠ B = _____ tan ∠ B = _____

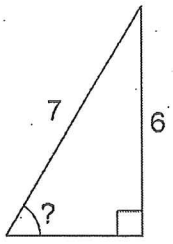
Find the missing angle measures.

2.

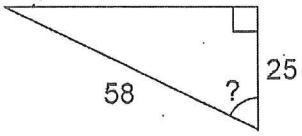


? = _____

3.



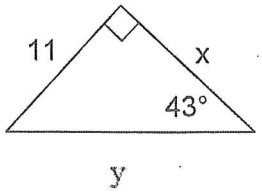
? = _____



? = _____

Find the missing sides.

5.



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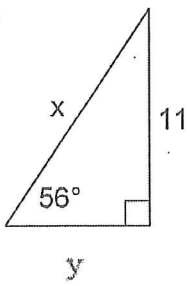

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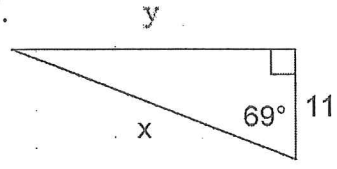

x = _____ y = _____ x = _____ y = _____ x = _____ y = _____

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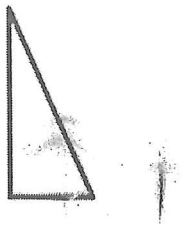

9. In a right triangle with acute angle θ, $\tan\theta = \frac{\sqrt{3}}{3}$. Find cosθ and $\sin\theta$.

10. In a right triangle with acute angle θ, $\sin\theta = \frac{6}{13}$. Find tanθ and cosθ.

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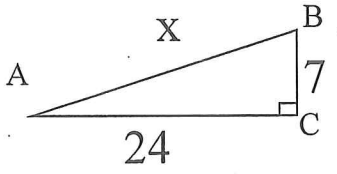
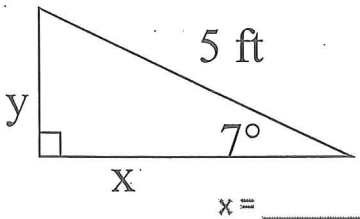


X= _____

sin ∠ A = _____ cos ∠ A = _____ tan ∠ B = _____ cos ∠ B = _____

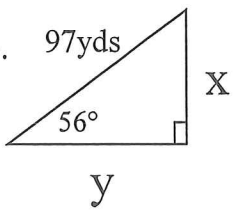
Find each variable and round to the nearest tenth. Show WORK!!!

2.



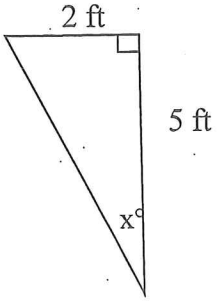
x = _____ y = _____

3.



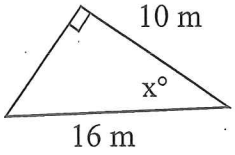
x = _____ y = _____

4.



x = _____

5.



x = _____