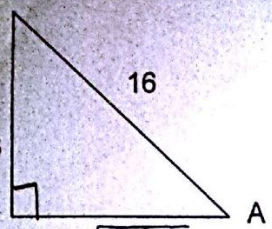
AFM Quiz 1 Form A: Trigonometric Ratios 50 **Name:** Key

Find all 6 trigonometric ratios of ∠ A for the following:

1.



$3^2 + b^2 = 16^2$
$9 + b^2 = 256$
$b^2 = 247$
$b = \sqrt{247}$

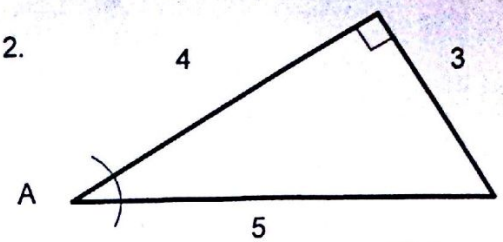
$\sqrt{247}$

sin A = $\frac{3}{16}$ csc A = $\frac{16}{3}$

cos A = $\frac{\sqrt{247}}{16}$ sec A = $\frac{16}{\sqrt{247}} = \frac{16\sqrt{247}}{247}$

tan A = $\frac{3}{\sqrt{247}} = \frac{3\sqrt{247}}{247}$ cot A = $\frac{\sqrt{247}}{3}$

2.



sin A = $3/5$ csc A = $5/3$

cos A = $4/5$ sec A = $5/4$

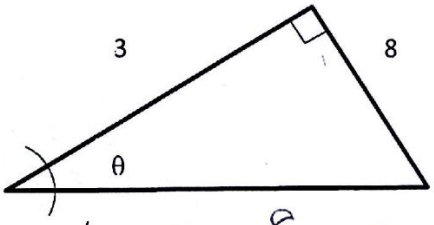
tan A = $3/4$ cot A = $4/3$

2 each (24)

Set up a ratio and solve for the indicated side or angle to the nearest tenth. Show the ratio that was used.

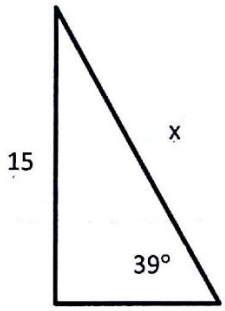
3 each (6)

3.



$\tan\theta = \frac{8}{3}$ $\theta = 69.4°$

4.



$\frac{\sin 39}{1} = \frac{15}{x}$
$15 = x \cdot \sin 39$
23.8

Use a calculator to find the following ratios to the 4th decimal place. CHECK YOUR MODE!!!

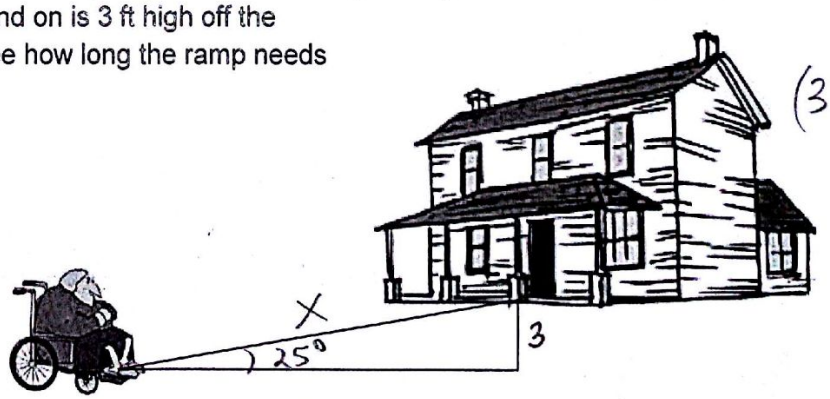
2 each (8)

5. cos(44°) .7193 6. tan(60°) 1.7321 7. cos(90°) 0 8. sin(180°) 0

9. You and a friend are making a wheelchair ramp for your grandma so she can get into her house without help. You need to determine how long the ramp needs to be if it is going to have a 25 degree angle of elevation from the ground to the door. The deck that the ramp will end on is 3 ft high off the ground. Label the picture and use trig ratios to see how long the ramp needs to be.

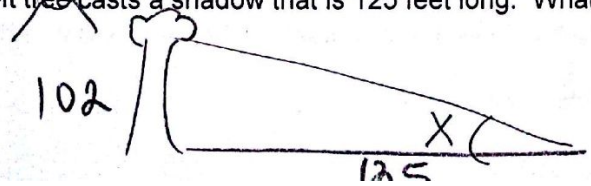
(3)

$\frac{\sin 25}{1} = \frac{3}{x}$
$3 = x \cdot \sin 25$
$x = 7.1$ ft



10. A 102-ft tree casts a shadow that is 125 feet long. What is the angle of elevation to the sun from the ground?

(4)



$\tan x = \frac{102}{125}$ $39.2°$

AFM Quiz 1 Form A: Trigonometric Ratios /50 **Name:** Key

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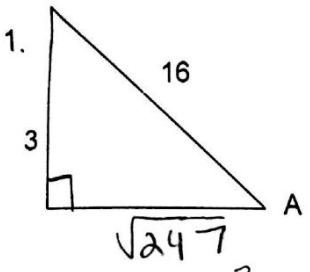

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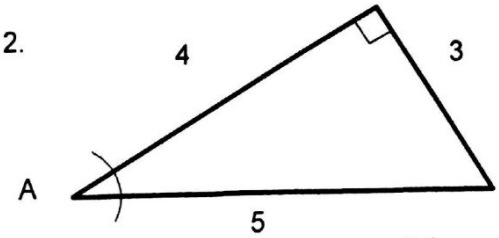
2.



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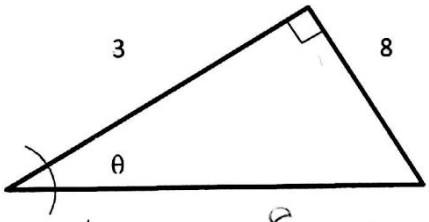
3 each (6)

3.



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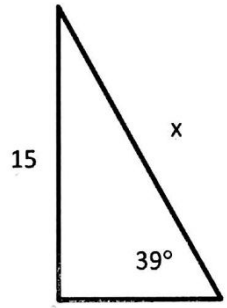
4.



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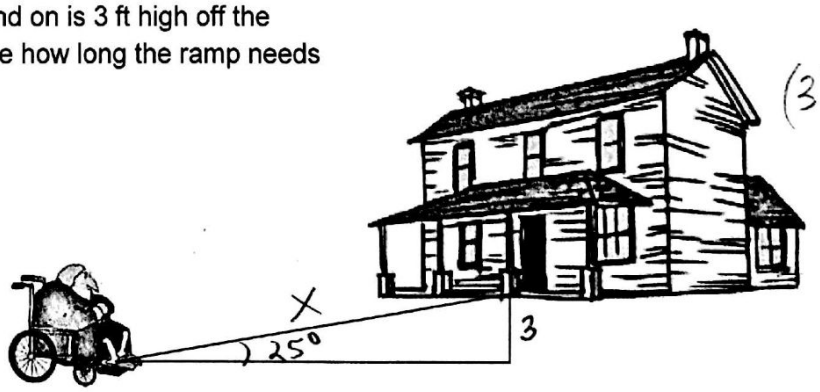

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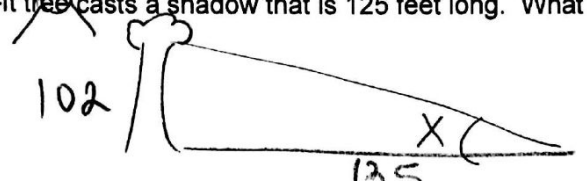
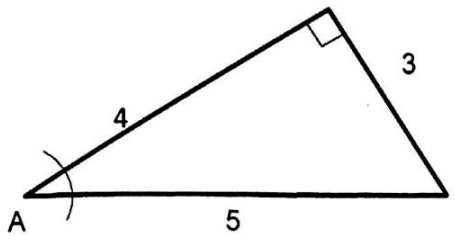
(4)



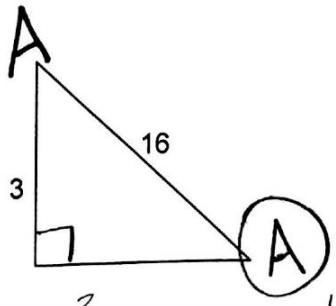
$\tan x = \frac{102}{125}$ 39.2°

z 1 Form B: Trigonometric Ratios **Name:** Key

ll 6 trigonometric ratios of ∠ A for the following:



2.



sin A = $\frac{3}{5}$ csc A = $\frac{5}{3}$

cos A = $\frac{4}{5}$ sec A = $\frac{5}{4}$

tan A = $\frac{3}{4}$ cot A = $\frac{4}{3}$

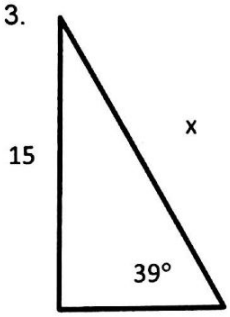
cos A ~~sin A =~~ $\frac{3}{16}$ csc A = $\frac{16}{3}$

sin A ~~cos A~~ = $\frac{\sqrt{247}}{16}$ sec A = $\frac{16}{\sqrt{247}} = \frac{16\sqrt{247}}{247}$

tan A = $\frac{3}{\sqrt{247}} = \frac{3\sqrt{247}}{247}$ cot A = $\frac{\sqrt{247}}{3}$

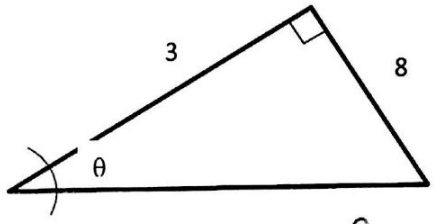
Set up a ratio and solve for the indicated side or angle to the nearest tenth. Show the ratio that was used.

3.



23.8

4.



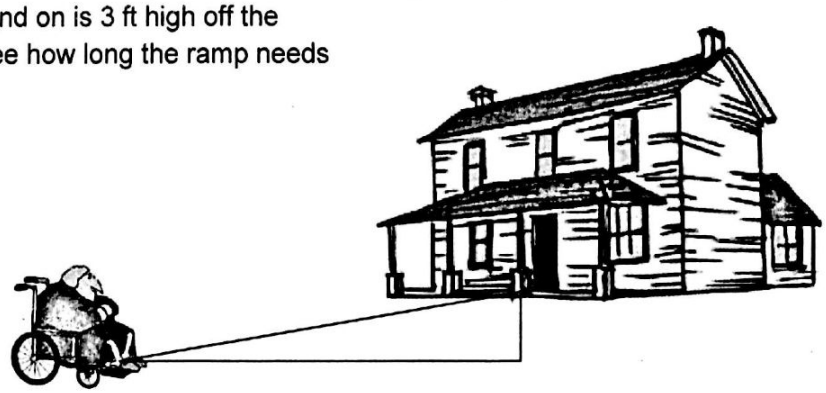
69.4°

Use a calculator to find the following ratios to the 4th decimal place. CHECK YOUR MODE!!!

5. cos(44°) .7193 6. tan(60°) 1.7321 7. cos(90°) 0 8. sin(180°) 0

9. You and a friend are making a wheelchair ramp for your grandma so she can get into her house without help. You need to determine how long the ramp needs to be if it is going to have a 25 degree angle of elevation from the ground to the door. The deck that the ramp will end on is 3 ft high off the ground. Label the picture and use trig ratios to see how long the ramp needs to be.

7.1 ft



10. A 102-ft tree casts a shadow that is 125 feet long. What is the angle of elevation to the sun from the ground?

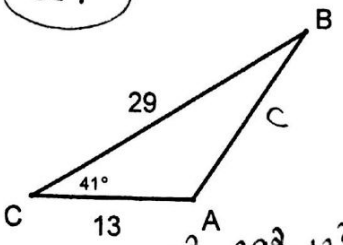
39.2°

AFM Quiz: Law of Sines vs. Law of Cosines Name: KEY

Solve for the indicated side or angle. Round your answers to the nearest hundredth.

1. Find AB.

21

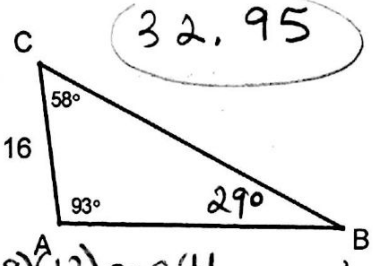


$c^2 = 29^2 + 13^2 - 2(29)(13)\cos 41$

$c = 20.999$

2. Find BC.

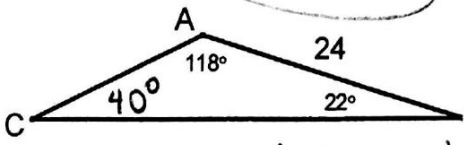
32.95



$\frac{\sin 29}{16} = \frac{\sin 93}{a}$

3. Find AC.

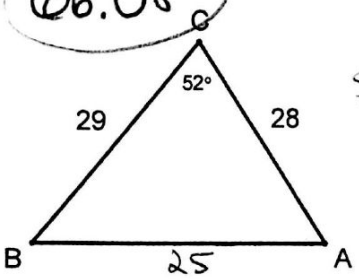
13.99



$\frac{\sin 40}{24} = \frac{\sin 22}{b}$

4. Find m∠A.

66.08°



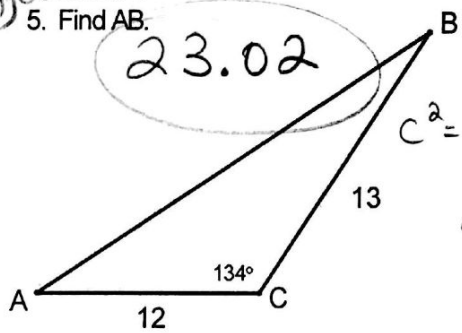
$c^2 = 29^2 + 28^2 - 2(29)(28)\cos 52$

$c = 25$

$\frac{\sin 52}{25} = \frac{\sin A}{29}$

5. Find AB.

23.02



$c^2 = 13^2 + 12^2 - 2(13)(12)\cos 134$

$c = 23.02$

Determine whether the Law of Sines or the Law of Cosines should be used to solve the following triangles.

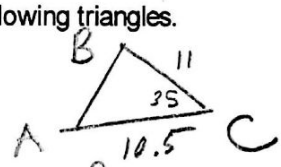
DO NOT SOLVE!!!!!!!

6. a = 13; b = 15; c = 16

LOC

7. C = 35°; a = 11; b = 10.5

LOC

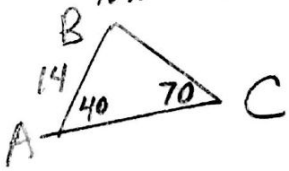


8. b = 17; B = 45°; a = 12

LOS

9. A = 40°; c = 14; C = 70°

LOS



Solve for ALL POSSIBLE triangles that can be formed using the given information (all angles and all sides). Round angles to the nearest degree; side lengths to the nearest hundredth.

10. A = 38°; b = 10; a = 8

B= 50° C= 92° c= 12.99 / OR B = 130° C = 12° c = 2.70

11. A = 40°; B = 60°; c = 20

C= 80° a= 13.05 b= 17.59

12. b = 10; A = 140°; a = 3

B=____ C=____ c=____ NOT a Δ

13. C = 17°; a = 10; c = 11

A= 15° B= 148° b= 19.94

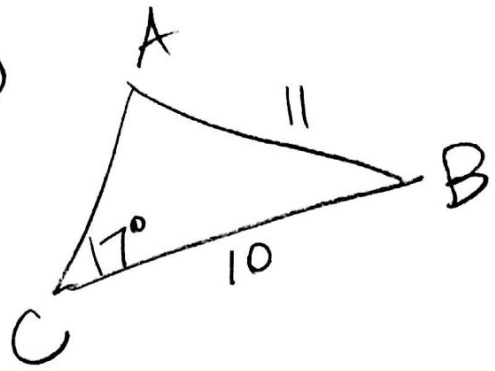
14. c = 14.1; A = 29°; b = 7.8

B= 95° C= 56° a= 8.20 / OR B = 27° C = 124° a = 8.2

15. C = 21; a = 14; B = 60°

A= 99° b= 12.28 c= 5.08

13)



① $\frac{\sin 17}{11} = \frac{\sin A}{10}$

$A = 15°$

$B = 148°$

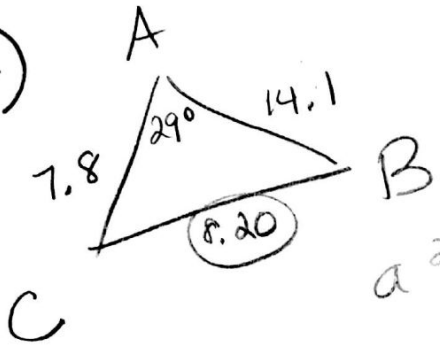
$\frac{\sin 17}{11} = \frac{\sin 148}{b}$

$b = 19.94$

② $180 - 15 = 165$

$165 + 17 < 180$ No

14)



$\frac{\sin 29}{8.2} = \frac{\sin B}{7.8}$

$a^2 = 14.1^2 + 7.8^2 - 2(14.1)(7.8)\cos 29$

$a = 8.20$

① $\frac{\sin 29}{8.2} = \frac{\sin C}{14.1}$

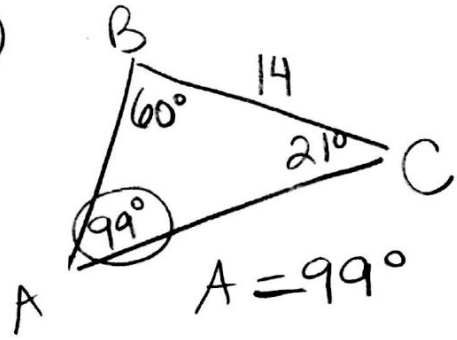
$C = 56°$ $B = 95°$

② $C = 124$

$124 + 29 < 180$

$\cancel{B = 27°}$

15)

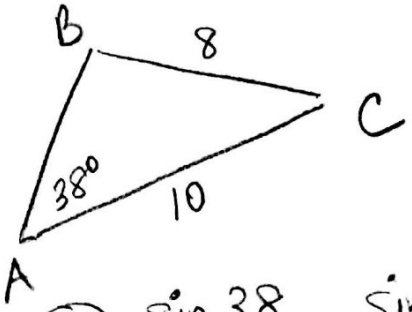


$A = 99°$

$\frac{\sin 99}{14} = \frac{\sin 21}{c}$ $\frac{\sin 99}{14} = \frac{\sin 60}{b}$

$c = 5.08$ $b = 12.28$

10)



① $\frac{\sin 38}{8} = \frac{\sin B}{10}$

$B = 50°$

$C = 92°$

$\frac{\sin 38}{8} = \frac{\sin 92}{c}$

$c = 12.99$

② $180 - 50 = 130$

$38 + 130 < 180$? Yes

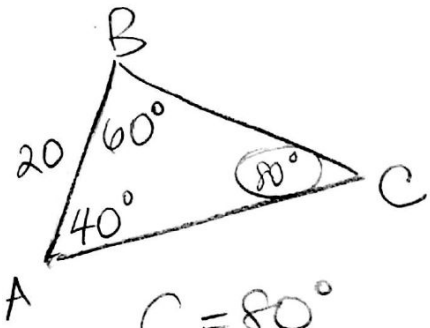
$B = 130°$

$C = 12°$

$\frac{\sin 38}{8} = \frac{\sin 12}{c}$

$c = 2.70$

11)



$C = 80°$

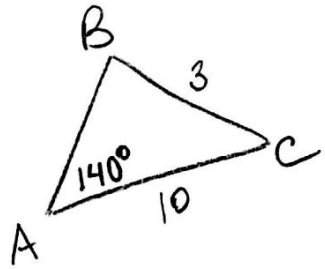
$\frac{\sin 80}{20} = \frac{\sin 60}{b}$

$b = 17.59$

$\frac{\sin 80}{20} = \frac{\sin 40}{a}$

$a = 13.05$

12)



$\frac{\sin 140}{3} = \frac{\sin B}{10}$