1

6. In the triangle shown, $\overline{DE} \perp \overline{BC}$. What is the length of $\overline{CB}$?

A. 12   C. 60

B. 33   D. 75

Triangle with points C, D, E, A, B. Segments labeled 5, 3, 2.

2

Sine: $\sin(\theta) = \dfrac{opp}{hyp}$

Cosine: $\cos(\theta) = \dfrac{adj}{hyp}$

Tangent: $\tan(\theta) = \dfrac{opp}{adj}$

θ Theta

hypotenuse, opposite, adjacent, θ

$$S\dfrac{o}{h} \quad C\dfrac{a}{h} \quad T\dfrac{o}{a}$$

3

Find the sine, the cosine, and the tangent of theta

24.5 hyp, 8.2 opp, 23.1 adj
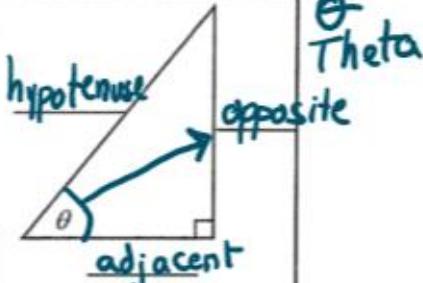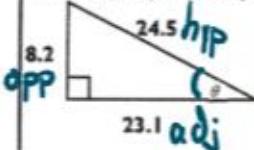
$$\sin(\theta) = \dfrac{8.2}{24.5}$$

$$\cos(\theta) = \dfrac{23.1}{24.5}$$

$$\tan(\theta) = \dfrac{8.2}{23.1}$$

4

Find the sine, the cosine, and the tangent of theta.
Give a fraction.

Triangle with sides 35, 37, 12, angle θ.
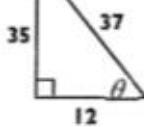
Find the sine and cosine of 90-θ

What Did One Mind Reader Say to the Other Mind Reader?

Write the trigonometric ratio. Then write the letter of the correct choice in the box containing the exercise number. If the answer has a ● shade in the box instead of writing a letter in it.

1 sin A **E**   (E) $\frac{12}{13}$ (L) $\frac{5}{13}$

2 cos A **L**   (L) $\frac{12}{13}$ (E) $\frac{5}{13}$

3 tan A **●**   (●)   (V) $\frac{13}{5}$

Triangle: A, 13, 12, C, 5, B

4 sin B **W**   (P) $\frac{13}{5}$ (Y) $\frac{5}{13}$

5 cos B **Y**   (W) $\frac{12}{13}$ (E) $\frac{12}{5}$

6 tan B **E**   (A) 13, 12, C, 5, B

Triangle: A, 13, 12, C, 5, B

7 sin A **●**   (W) $\frac{\sqrt{3}}{2}$ (●)

8 cos A **W**   (I) $\frac{1}{\sqrt{3}}$ (T) 2

9 tan A **I**

Triangle: A, 2, C, 1, B, √3

10 sin B **A**   (E) $\sqrt{3}$ (A) $\frac{1}{2}$

11 cos B **●**   (A) $\frac{\sqrt{3}}{2}$ (I) $\frac{1}{\sqrt{3}}$

12 tan B **E**

Triangle: A, 2, C, 1, B, √3

13 sin A **U**   (I) $\frac{3}{5}$ (O) $\frac{5}{3}$

14 cos A **H**   (N) $\frac{4}{7}$ (R) $\frac{4}{\sqrt{65}}$

15 tan A **●**   (M) $\frac{7}{4}$ (U) $\frac{4}{5}$

Triangle: B, 12, 9, A, 15

16 sin B **I**   (N) $\frac{4}{7}$ (R) $\frac{4}{\sqrt{65}}$

17 cos B **R**   (M) $\frac{7}{4}$ (F) $\frac{7}{\sqrt{65}}$

18 tan B **M**

Triangle: C, 4, B, 7, √65, A

19 sin A **L**   (H) $\frac{15}{17}$ (L) $\frac{8}{17}$

20 cos A **H**   (S) $\frac{17}{8}$ (●) $\frac{8}{15}$

21 tan A **●**

Triangle: A, 34, 30, C, 16, B

22 sin A **O**   (H) $\frac{1}{\sqrt{2}}$ (O) $\frac{1}{\sqrt{2}}$

23 cos A **O**   (O) $\frac{1}{\sqrt{2}}$ (N) 1

24 tan A **N**   (E) $\sqrt{2}$ (N) 1

Triangle: A, 1, C, 1, B, √2

Answer boxes (bottom strip):

8	12	19	2	5	22	13	17	6	9	24	1	20	23	4	10	18	14
W	E	L	L	M	Y	O	R	E	F	N	E	A	O	W	A	M	I

Trigonometry Ratios – Classwork

Draw △ABC where ∠ABC = 90°, AB = 8, BC = 15, and AC = 17.

1. What is tan C? $\dfrac{8}{15}$

2. What is sin A?

$SIN(A) = \dfrac{15}{17}$
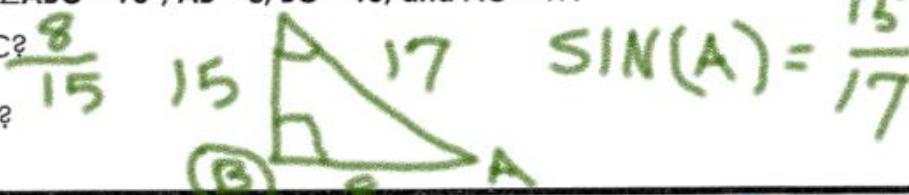
Draw △ABC where ∠ACB = 90°, AC = 5, and CB = 12.

3. What is the length of AB?

4. What is cos A? $COS(A) = \dfrac{5}{13}$
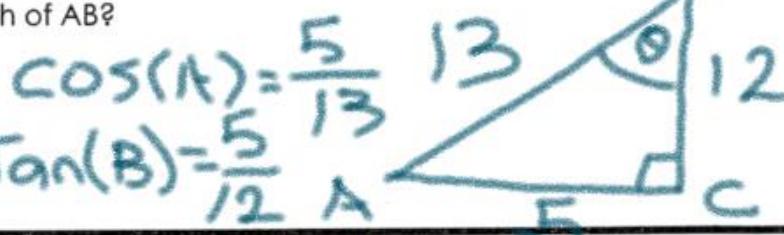
5. What is tan B? $Tan(B) = \dfrac{5}{12}$

Draw △CAT where ∠ATC = 90°, CA = 53, and CT = 28. 28

6. What is the length of AT?

7. What is sin C? $Sin(c) = \dfrac{45}{53}$ 53
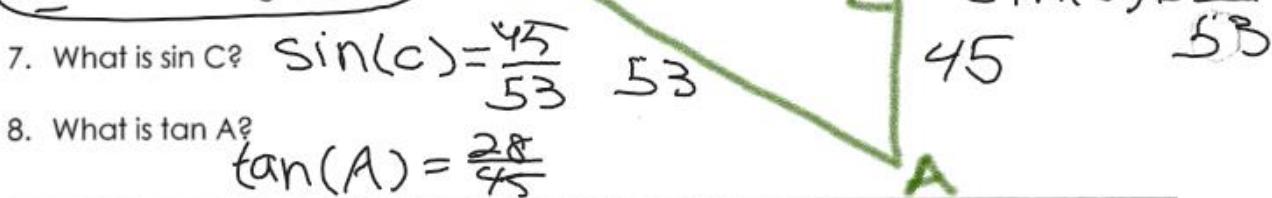
8. What is tan A?
$tan(A) = \dfrac{28}{45}$

$\cdot sin(c) = \dfrac{x}{53}$ 45

Draw △ABC where ∠B = 90° and sin A = $\dfrac{12}{20}$ $\dfrac{OPP}{hyp}$

9. What is the length of AB?   16

10. What is tan A? $tan(A)$ $\dfrac{12}{16} = \dfrac{3}{4}$

11. What is cos A?
$cos(A) = \dfrac{16}{20} = \dfrac{4}{5}$

16 X
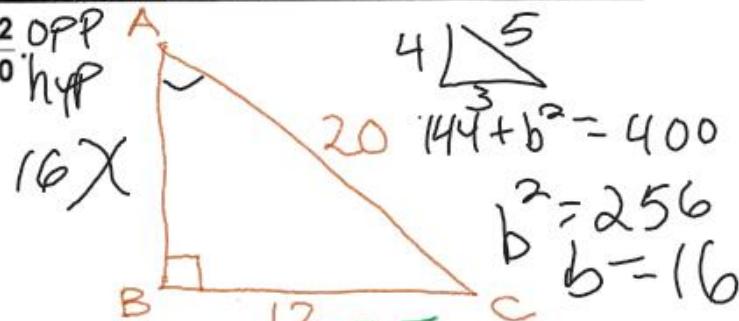
20   $144 + b^2 = 400$
$b^2 = 256$
$b = 16$

Draw △HAT where ∠H = 90° and tan T = $\dfrac{12}{35}$.

12. What is the length of AT?   37

13. What is sin A? $= \dfrac{35}{37}$

14. What is cos T?
$= \dfrac{35}{37}$

37 X

35   12
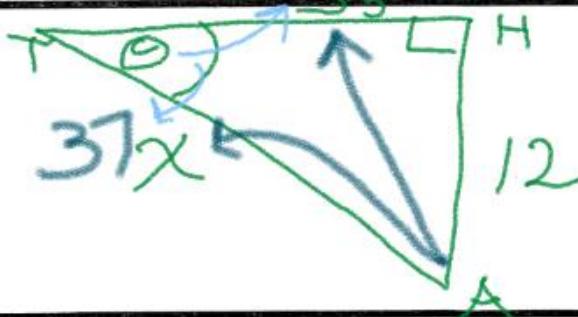
In the following problems, DRAW stick-man standing where the angle is and MARK each given side as **A** (*adjacent*), **O** (*opposite*), or **H** (*hypotenuse*). Then TELL which **TRIG RATIO** you have. *You will NOT be solving the problem for x (we haven't learned how YET).*

15. Which trig ratio is represented?

   A. SIN
   B. COS
   C. TAN

   69   39°   x
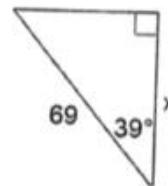
16. Which trig ratio is represented?

   A. SIN
   B. COS
   C. TAN

   x   69   57°
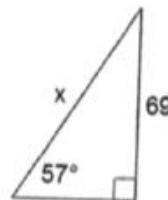
17. Which trig ratio is represented?

   A. SIN
   B. COS
   C. TAN

   x   18°   52
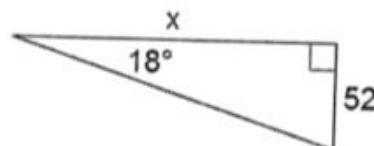
18. Which trig ratio is represented?

   A. SIN
   B. COS
   C. TAN

   x   62°   52   opp
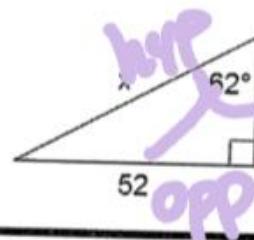
Find each ratio and be sure to reduce, if possible.   Warm Up

19. Tan Z

   $T = \frac{o}{a} = \frac{32}{24} : \frac{8}{8} = \boxed{\frac{4}{3}}$

   Y   32   X   Z

20. Sin X

   $\frac{20}{25} = \frac{4}{5}$

   Z   20   Y   25   15   X

21. Cos A

   $\frac{27}{45} = \frac{3}{5}$

   C   45   36   A   27   B

22. Sin C

   $\frac{40}{41}$

   C   41   A   9   40   B

34

Card 1
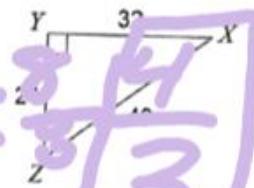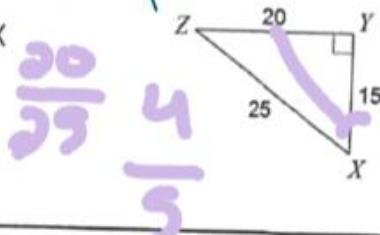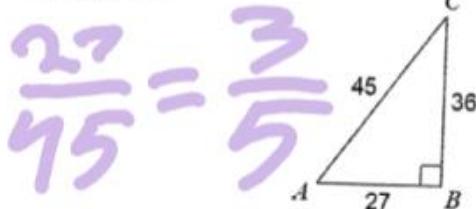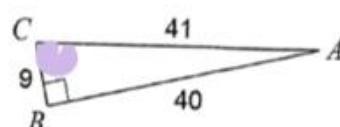
Circle P is dilated to for circle P'. Which statement is ALWAYS true?

A. The radius of the circle P is equal to the radius of circle P'
B. The length of any chord in circle P is greater than the length of any chord in circle P'
C. Diameter of circle P is greater than the diameter of circle P'
D. The ratio of the diameter to the circumference is the same for both circles.

1

Card 2

Trig Ratios

1. $\sin A = \dfrac{2}{5}$

2. $\cos A = \dfrac{\sqrt{21}}{5}$

3. $\tan A = \dfrac{2}{\sqrt{21}} \cdot \dfrac{\sqrt{21}}{\sqrt{21}} = \dfrac{2\sqrt{21}}{21}$

4. If C = 20°, then cos C is equal to:
   (A.) sin 70   B. cos 70   C. tan 70

[Handwritten: $2^2 + b^2 = 5^2$]
[Handwritten: $x^2 = \sqrt{16}$]

2

Card 3

Using Trig to Find Missing Angles and Missing Sides

3

Card 4

Finding a side.
(Figuring out which ratio to use and getting to use a trig button.)

4

Card 5

Ex: 1 Figure out which ratio to use. Find x. Round to the nearest tenth.

Tan(θ)
Tan(55)   adj   opp

$\dfrac{20}{1} \cdot Tan(55) = \dfrac{x}{20} \cdot \dfrac{20}{1}$

$20 \ast Tan(55) = x$

$28.6 = x$

5

Card 6
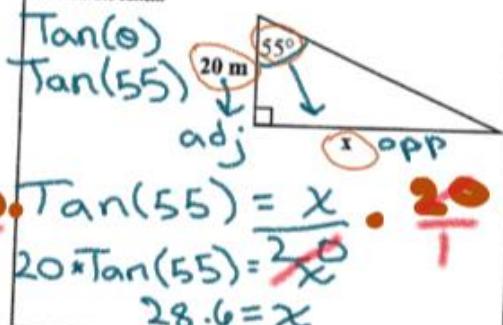
Ex. 2: Find the missing side. Round to the nearest tenth.

$x \cdot Tan(72) = \dfrac{80}{x}$

$\dfrac{x \cdot Tan(72)}{Tan(72)} = \dfrac{80}{Tan(72)}$

$x = 26$

6

Ex: 3 Find the missing side. Round to the nearest tenth.

283 m

H

x

115

24°
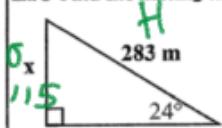
$\sin(24) = \frac{x}{283}$

$x = 283 \cdot \sin(24)$

7

Ex: 4 Find the missing side. Round to the nearest tenth.

H

x

40°

20 ft

A

$\cos(40) = \frac{20}{x}$

$x = \frac{20}{\cos(40)}$

$x \approx 26.1$

8