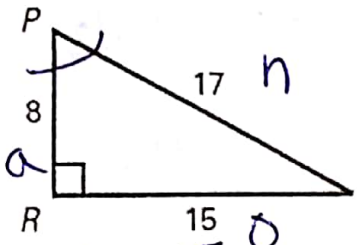
Name _____ Date _____

Ms. Schmidt Intermediate Algebra

Final Review #6

Trigonometry

1) Find $\sin P$, $\cos P$, $\tan P$

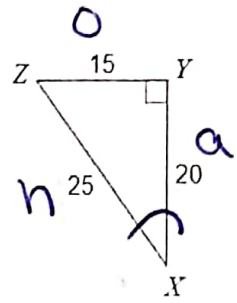


$\sin P = \frac{15}{17}$

$\cos P = \frac{8}{17}$

$\tan P = \frac{15}{8}$

2) Find $\sin X$, $\cos X$, $\tan X$



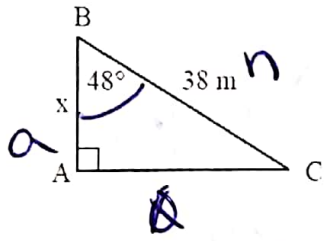
$\sin X = \frac{15}{25} = \frac{3}{5}$

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

$\tan x = \frac{15}{20} = \frac{3}{4}$

Solve for the missing side. Round all answers to the nearest tenth.

3)

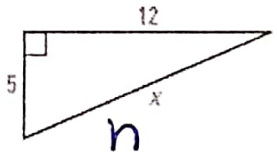


$\frac{\cos 48}{1} = \frac{x}{38}$

$x = 38\cos 48$

$x = 25.4$

4)



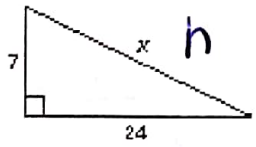
$a^2 + b^2 = c^2$

$5^2 + 12^2 = x^2$

$\sqrt{169} = \sqrt{x^2}$

$13 = x$

5)



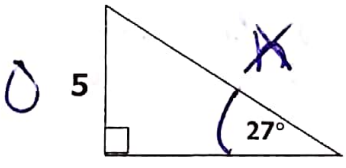
$a^2 + b^2 = c^2$

$7^2 + 24^2 = c^2$

$\sqrt{625} = \sqrt{c^2}$

$25 = c$

6)



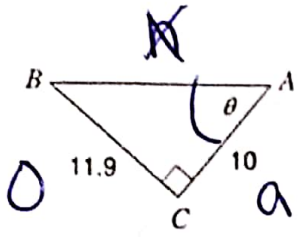
$\frac{\tan 27}{1} = \frac{5}{x}$

$\frac{5}{\tan 27} = \frac{x \tan 27}{\tan 27}$

$x = 9.8$

Solve for missing angle. Round all answers to the nearest degree.

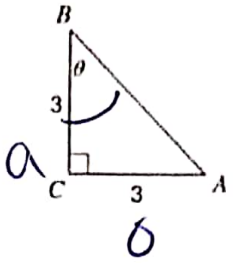
7)



$\tan^{-1}(11.9/10)$

$\theta = 50$

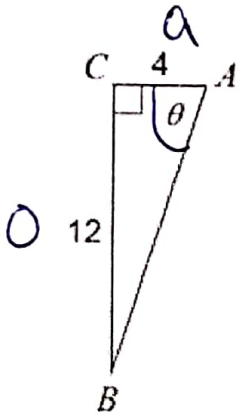
8)



$\tan^{-1}(3/3)$

$\theta = 45°$

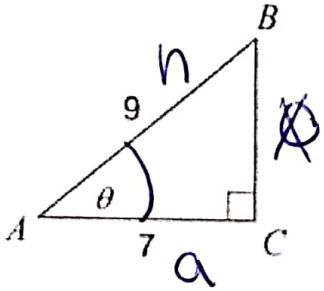
9)



$\tan^{-1}(12/4)$

$\theta = 72°$

10)



$\cos^{-1}(7/9)$

$\theta = 39°$

11) Use the triangle to the right to answer both parts.

A) Find the value of x.

$a^2 + b^2 = c^2$

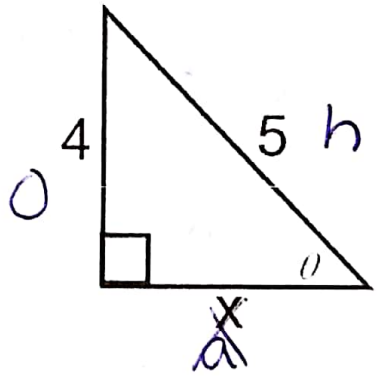
$4^2 + b^2 = 5^2$

$16 + b^2 = 25$

$-16 \quad -16$

$\sqrt{b^2} = \sqrt{9}$

$b = 3$



B) Find the value of angle θ. Round your answer to the nearest degree.

$\sin^{-1}(4/5) = 53°$

Coordinate Geometry

12) Line segment AB has endpoints (-3, 1) and (-7, -2), find the slope, midpoint and distance of this line.

$x_1\ y_1 \quad x_2\ y_2$

a) Slope

$$\frac{y_2-y_1}{x_2-x_1} = \frac{-2-1}{-7-3} = \frac{-3}{-4} = \boxed{\frac{3}{4}}$$

b) Midpoint $\left(\frac{x_1+x_2}{2}, \frac{y_1+y_2}{2}\right)$

$$\left(\frac{-3+-7}{2}, \frac{1+-2}{2}\right) \rightarrow \boxed{\left(-5, -\frac{1}{2}\right)}$$

c) Distance $\sqrt{(x_2-x_1)^2+(y_2-y_1)^2}$

$$\sqrt{(-7-3)^2+(-2-1)^2}$$

$$\sqrt{(-4)^2+(-3)^2} = \sqrt{25} = \boxed{5}$$

13) Line segment DC has endpoints (2, 6) and (-1, -8), find the slope, midpoint and distance of this line.

$x_1\ y_1 \quad x_2\ y_2$

a) Slope

$$\frac{y_2-y_1}{x_2-x_1} = \frac{-8-6}{-1-2} = \frac{-14}{-3} = \boxed{\frac{14}{3}}$$

b) Midpoint $\left(\frac{x_1+x_2}{2}, \frac{y_1+y_2}{2}\right)$

$$\left(\frac{2+-1}{2}, \frac{6+-8}{2}\right) \rightarrow \boxed{\left(\frac{1}{2}, -1\right)}$$

c) Distance $\sqrt{(x_2-x_1)^2+(y_2-y_1)^2}$

$$\sqrt{(-1-2)^2+(-8-6)^2} = \boxed{\sqrt{205}}$$

Mixed Review

14) State if each of the following are functions:

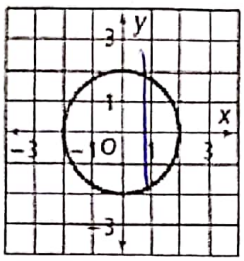
a) {(-1, 5), (0, 3), (2, 3), (3, -1)}

Function

b) {(-2, -1), (0, 3), (5, 4), (-2, 3)}

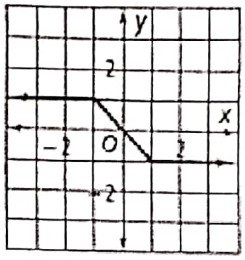
Not a function

c)



Not!

d)



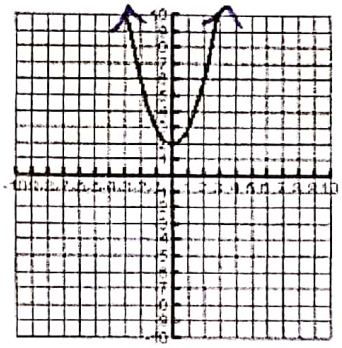
Function!

15) State the domain of each of the following.

a) {(-1, 7), (0, -3), (1, 10), (0, 7)}

$D: \{-1, 0, 1, 0\}$

b)



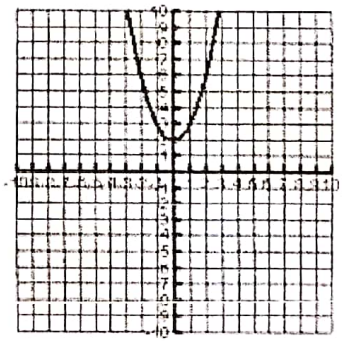
$D: (-\infty, \infty)$

16) State the range of each of the following.

a) {(-1, 7), (0, -3), (1, 10), (0, 7)}

$R \{7, -3, 10, 7\}$

b)



$R: [2, \infty)$