

Name:
 Trig Unit Test Study guide

Part 1 each question is worth 2 points

1) The degree measure of angle is 76 degrees what is the radian measure?

$$\frac{76\pi}{180} = \frac{19\pi}{45}$$

2) Find one positive angle and one negative angle that are conterminal with 240 degrees?

$$240 + 360 = 600$$

$$240 - 360 = -120$$

3) What is the radian measure of 50 degrees?

$$\frac{50\pi}{180} = \frac{5\pi}{18}$$

4) What is the reference angle of $-\frac{7\pi}{6}$?

$$\frac{-7\pi}{6} + \frac{2\pi}{1} (6) = \frac{-7\pi}{6} + \frac{12\pi}{6} = \frac{5\pi}{6}$$

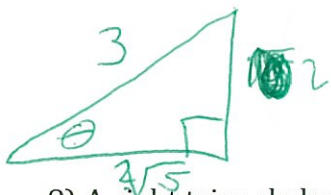
5) Find the exact value of $\sec\frac{4\pi}{3}$.

$$\cos\theta = -\frac{1}{2} \text{ so } -2$$

6) Determine the exact value of $\sin\frac{2\pi}{3}$.

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

7) If $\sin(x) = 2/3$ then $\sec(x)$ equals what?



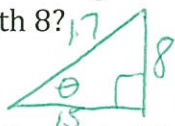
$$2^2 + b^2 = 3^2$$

$$b^2 = 5$$

$$b = \sqrt{5}$$

$$\sec(x) = \frac{3}{\sqrt{5}} = \frac{3\sqrt{5}}{5}$$

8) A right triangle has sides of length of 8, 15, and 17. What is the secant of the angle opposite of the side of length 8?

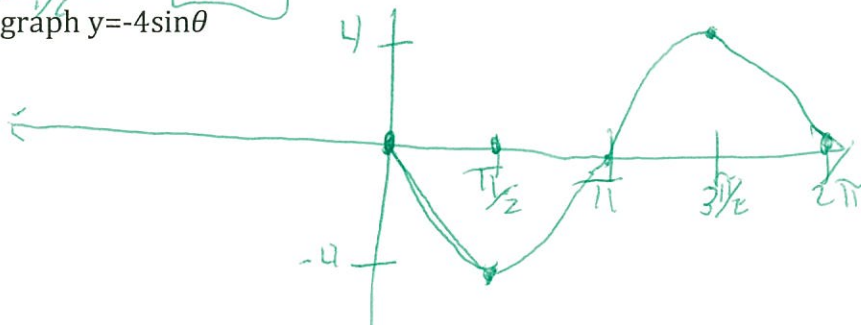


$$\frac{17}{15}$$

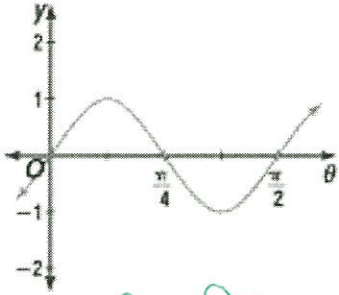
9) State the amplitude and the period for $y = -3\cos\frac{1}{6}\theta$

$$a = |3|, p = \frac{2\pi}{1/6} = 12\pi$$

10) Sketch a graph $y = -4\sin\theta$



11) Write an equation for the following graph.

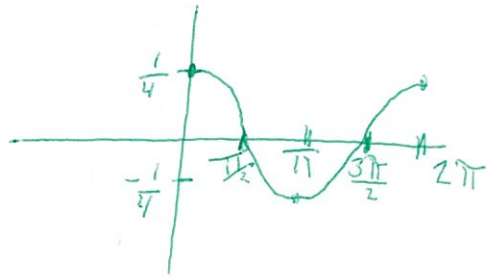


$$y = \sin 4\theta$$

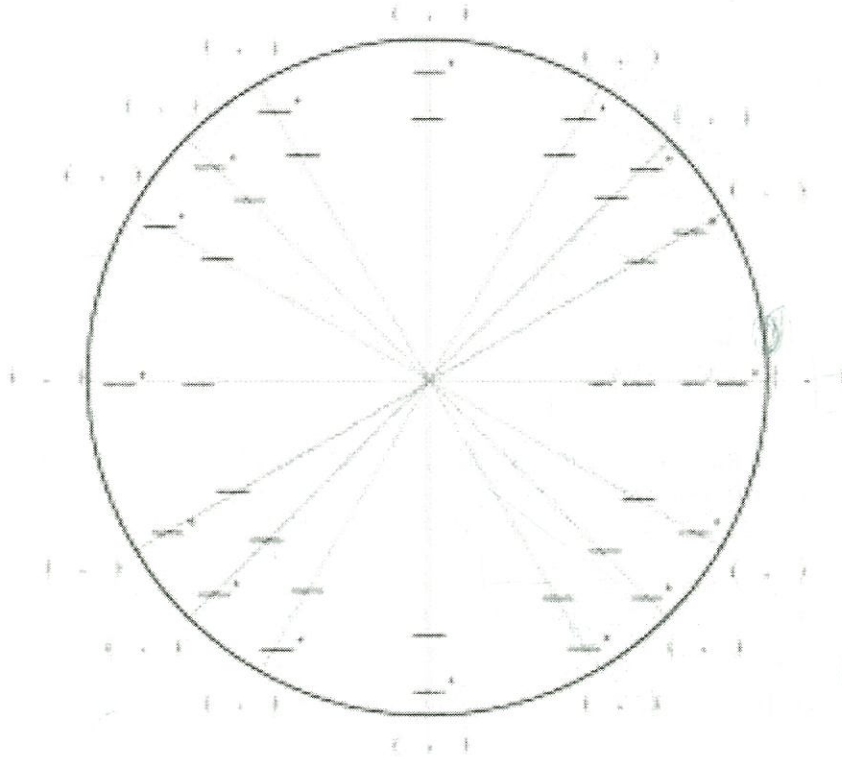
$$\frac{2\pi}{b} = \frac{\pi}{2}$$

$$b = 4$$

12) Sketch a graph $y = (1/4)\cos\theta$.



13) Complete the unit circle



14) Find the length of the arc on a circle with radius of 5 and the central that is 66 degrees.

15) Find the values of all six trigonometric functions for $\theta = \frac{3\pi}{4}$

$$\begin{aligned} \sin \theta &= \frac{\sqrt{2}}{2} & \csc \theta &= \frac{2}{\sqrt{2}} = \sqrt{2} \\ \cos \theta &= -\frac{\sqrt{2}}{2} & \sec \theta &= -\sqrt{2} \\ \tan \theta &= \frac{\sqrt{2}}{2} \div -\frac{\sqrt{2}}{2} = -1 & \cot \theta &= -1 \end{aligned}$$

16) Find the values of all six trigonometric functions for $\theta = \frac{\pi}{6}$

$$\begin{aligned} \sin \theta &= \frac{1}{2} & \csc \theta &= 2 \\ \cos \theta &= \frac{\sqrt{3}}{2} & \sec \theta &= \frac{2}{\sqrt{3}} = \frac{2\sqrt{3}}{3} \\ \tan \theta &= \frac{1}{2} \div \frac{\sqrt{3}}{2} = \frac{1}{\sqrt{3}} = \frac{\sqrt{3}}{3} & \cot \theta &= \sqrt{3} \end{aligned}$$

17) Find all the trigonometric functions using the following figure

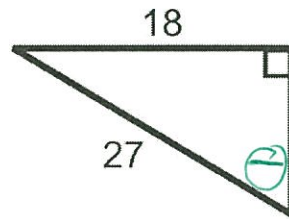
$$18^2 + b^2 = 27^2$$

$$b^2 = 405$$

$$b = \sqrt{405}$$

$$\sin \theta = \frac{18}{27}$$

$$\cos \theta = \frac{\sqrt{405}}{27} = \frac{9\sqrt{5}}{27} = \frac{\sqrt{5}}{3}$$



$$\sqrt{405} = 9\sqrt{5}$$

$$\tan \theta = \frac{18}{9\sqrt{5}} = \frac{2}{\sqrt{5}} = \frac{2\sqrt{5}}{5}$$

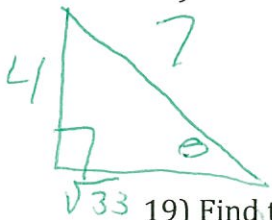
$$\frac{18}{9\sqrt{5}} = \frac{2}{\sqrt{5}} = \frac{2\sqrt{5}}{5}$$

$$\csc \theta = \frac{27}{18} = \frac{3}{2}$$

$$\sec \theta = \frac{3}{\sqrt{5}} = \frac{3\sqrt{5}}{5}$$

$$\cot \theta = \frac{\sqrt{5}}{2}$$

18) Find the other 5 trigonometric functions given $\sin \theta = 4/7$



$$4^2 + b^2 = 7^2$$

$$b^2 = 33$$

$$b = \sqrt{33}$$

$$\sin \theta = \frac{4}{7}$$

$$\cos \theta = \frac{\sqrt{33}}{7}$$

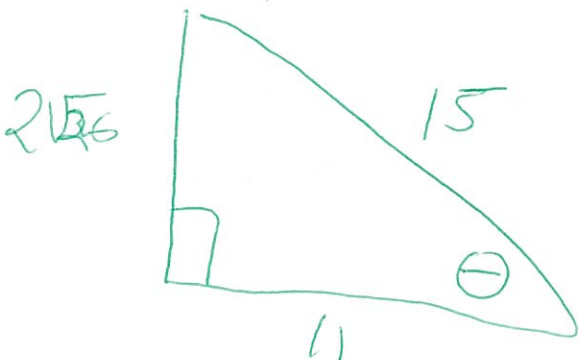
$$\tan \theta = \frac{4}{\sqrt{33}} = \frac{4\sqrt{33}}{33}$$

$$\csc \theta = \frac{7}{4}$$

$$\sec \theta = \frac{7}{\sqrt{33}} = \frac{7\sqrt{33}}{33}$$

$$\cot \theta = \frac{\sqrt{33}}{4}$$

19) Find the other 5 trigonometric functions given $\cos \theta = 11/15$



$$11^2 + b^2 = 15^2$$

$$b^2 = 104$$

$$b = \sqrt{104} = 2\sqrt{26}$$

$$b = 2\sqrt{26}$$

$$\sin \theta = \frac{2\sqrt{26}}{15}$$

$$\tan \theta = \frac{2\sqrt{26}}{11}$$

$$\csc \theta = \frac{15}{2\sqrt{26}} = \frac{15\sqrt{26}}{52}$$

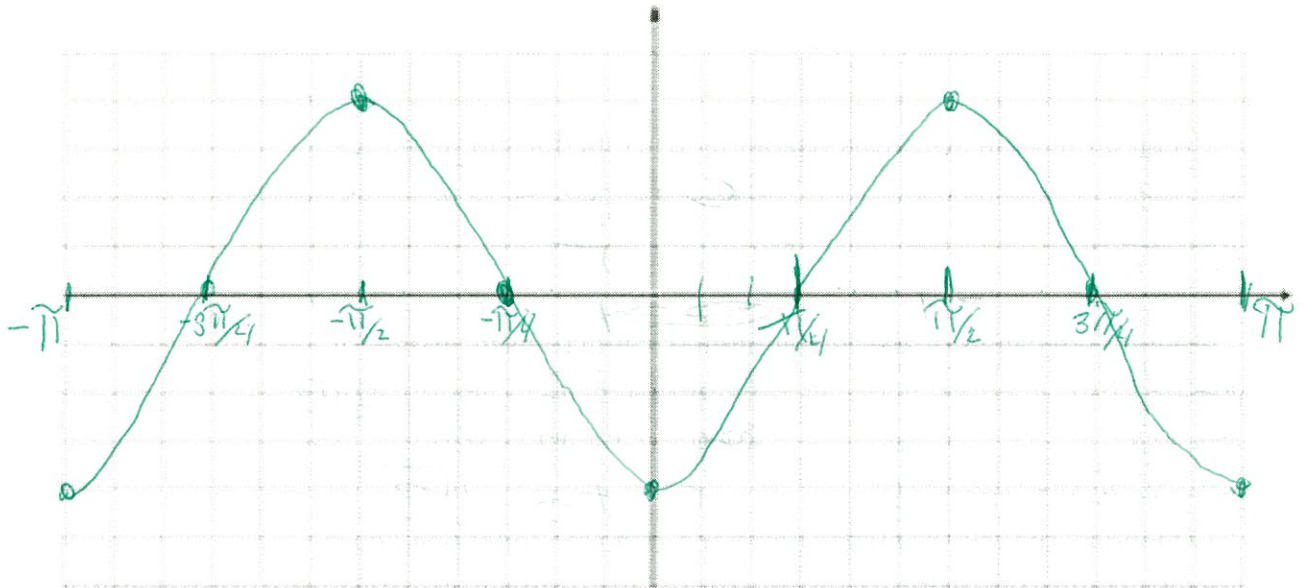
$$\sec \theta = \frac{15}{11}$$

$$\cot \theta = \frac{11}{2\sqrt{26}} = \frac{11\sqrt{26}}{52}$$

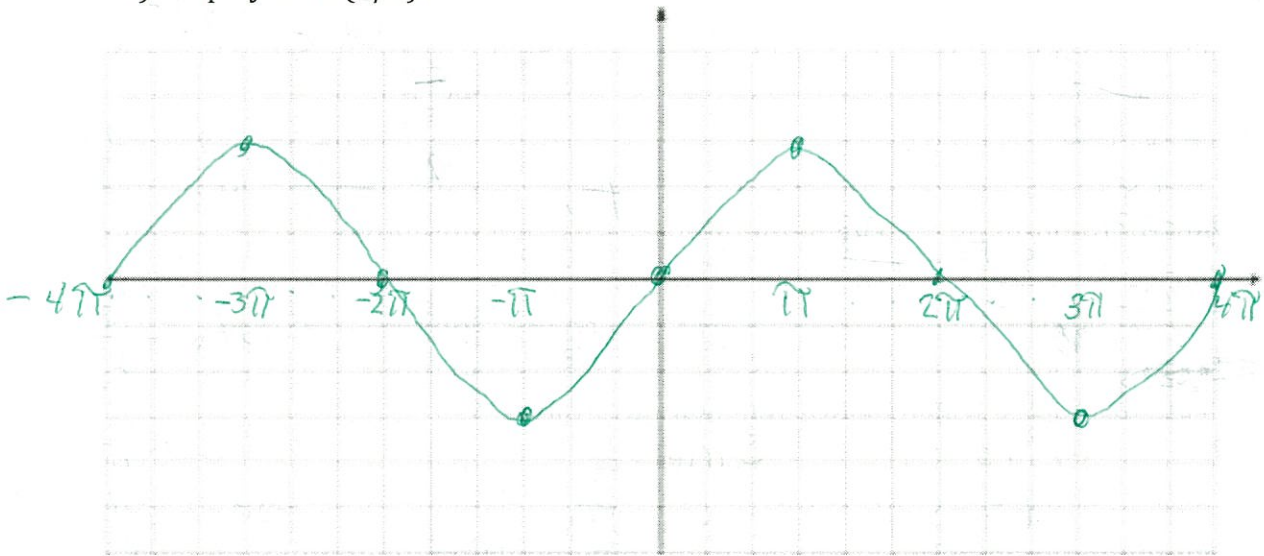
amplitude = 4
 period = $\frac{2\pi}{2} = \pi$

$(\frac{1}{4})\pi = \frac{\pi}{4}$
 $(\frac{1}{2})(\pi) = \frac{\pi}{2}$
 $(\frac{3}{4})(\pi) = \frac{3\pi}{4}$

20) Graph $y = -4\cos 2\theta$



21) Graph $y = 3\sin(\frac{1}{2}\theta)$



amplitude = 3
 period = $\frac{2\pi}{\frac{1}{2}} = 4\pi$

$4\pi(\frac{1}{4}) = \pi$
 $4\pi(\frac{1}{2}) = 2\pi$
 $4\pi(\frac{3}{4}) = 3\pi$