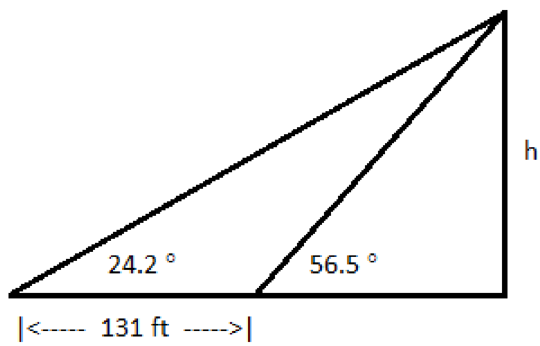
MATH 1321 Final Exam Spring 2017

SHOW ALL YOUR WORK. EACH PROBLEM IS WORTH THE SAME NUMBER OF POINTS.

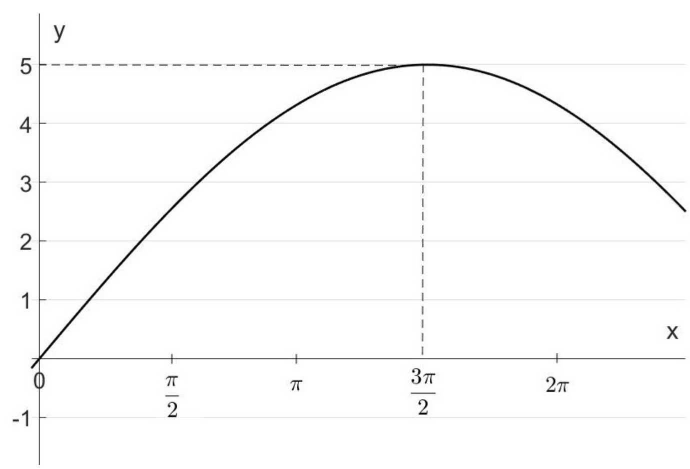
1. Find h as indicate in the figure below. Round the the nearest foot.



2. Find exact values of $\cos(\theta)$, $\tan(\theta)$, $\cot(\theta)$, $\sec(\theta)$, $\csc(\theta)$ if $\sin(\theta) = \frac{3}{5}$ and θ is in the second quadrant.

3. A bicicle with a 26-inch wheel (diameter) travels 200 feet. How many revolutions does the wheel make (to the nearest revolution)?

4. The function graphed is of the form $y = a\sin(bx)$ or $y = a\cos(bx)$, where $b > 0$. Determine the equation of the graph below.



5. Use trigonometry identities to find the exact value of $\cos(-75°)$.

6. Wirte $\cot(x)$ on terms of $\sin(x)$ for an angle x in the third quadrant.

7. If θ is in quadrant II and $\sin(\theta) = \frac{2}{3}$, find each exact value without using a calculator of:

   a) $\cos(\theta + \frac{3}{4}\pi)$,

   b) $\sin(\theta - \frac{\pi}{6})$.

8. Find the exact values of the following without using a calculator:

   a) $\sin 15° \cos 15°$,

   b) $\dfrac{2\tan(22.5°)}{1 - \tan^2(22.5°)}$.

9. Find the exact value of y in the following without using the calculator

$$y = \cos\left(2\arcsin\frac{4}{5}\right).$$

10. Solve each equation for solutions in the interval $[0,\, 2\pi)$:

    a) $\sin x \cos x = 1$,

    b) $\sin\frac{x}{2} + \cos\frac{x}{2} = 0$.

11. Find the remaining angles and sides of triangles ABC if it given that A=20°, B=50° and b=12. (Give the answer accurate to 2 decimals.)

12. How many triangles ABC are possible if a= 6, c= 9 and B= 70° ? Justify your answer.