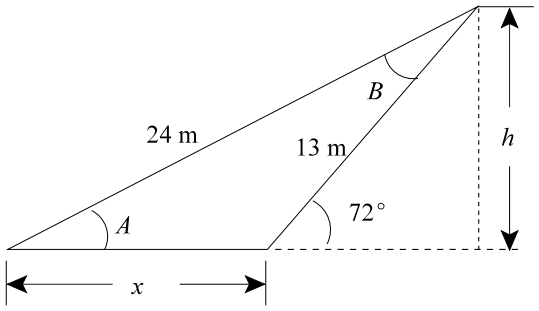
Physics 105
Math Pretest

In physics, we try to understand relationships between physical properties of objects and systems, and use mathematics to describe these relationships. So, while Physics 105 is not a math class, we do use math quite extensively.

The following problems are representative of the mathematics used in Physics 105. Complete these problems, and then check your own answers.

For Problems 1 - 3: Consider the triangle shown.



1. Calculate the height of the triangle, *h*.

2. Calculate the angles *A* and *B*.

3. Calculate the length *x*.

4. Calculate the area of the triangle.

For Problems 5 - 7: Solve for *x* in each of the following equations:

5. $2x + 3 = 7$

6. $3x^2 + 4 = x + 8$

7. $7x = \frac{5}{x} + 2$

8. $e^{2x} = 7$

9. Consider the system of equations

$$\begin{cases} -0.25 = 2.37t - 4.90t^2 \\ x = 3.41t \end{cases}$$

Calculate the value of *x*, knowing that it is positive.

For Problems 10 - 11: Consider the equation $av^2 + 3t = 4b^2t$

10. Solve symbolically for *v*.

11. Solve symbolically for *t*.

12. Determine the equation of the line connecting the two points shown.