# Math Skills Review Problems for Honors Physics

Hints & reminders:

- SOHCAHTOA
- The concept of a function (for example, *y* as a function of *x*) often written as *y(x)* and pronounced "y of x", can also be expressed with any variable names you want to use. In physics, we are often talking about physical quantities as a function of time. Velocity as a function of time would be *v(t)*.

1. Rearrange the equation to isolate the variable for which you'd like to solve (you do not have to calculate the value of that variable for this type of problem).

**Solve for b**

1) $3 = \sqrt{b - 1}$

**Solve for x**

2) $2 = \sqrt{\dfrac{x}{2}}$

**Solve for x**

7) $6 = -3(x + 2)$

**Solve for r**

8) $-3(4r - 8) = -36$

2. Evaluate functions. For this type of problem, you are finding a value.

1. If $f(x) = -3x + 8$, find $f(5)$.

3. If $h(x) = \frac{-2x+5}{4}$, find $h\left(\frac{3}{2}\right)$.

5. If $h(x) = \frac{-5x+2}{3}$, find $h(1)$.

7. If $v(t) = 6 + 3t^2$, what is $v(2)$?

3. Solve single equation problems.

a. $s(t) = -5 + 2t + \frac{1}{2}at^2$      if $s = 0$ when $t = 1$, what is $a$?

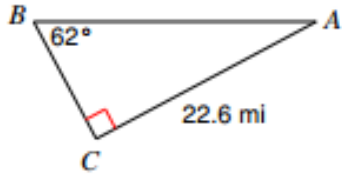b. $d(t) = vt + 5t^2$      if $d = 10$ when $t = 2$ what is $v$?

c. $v(t) = -3 + at$      if $v = 3$ when $t = 3$, what is $a$?
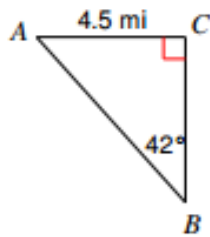
d. $y(t) = x + 2t^2$      if $y = 20$ when $t = 6$, what is $x$?

4. Use the sine, cosine and tangent functions and the inverses of these functions to find out about triangles. Find all the sides and angles of these right triangles:
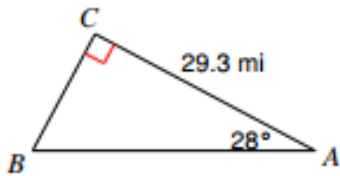
17)

$B$ 62°

$A$

22.6 mi

$C$

19)

$A$ 4.5 mi $C$

42°

$B$

21)

$C$

29.3 mi

28°

$B$ $A$

5. Solve systems of equations.  In this type of problem, I am looking for the values of y and x that make both equations true.

5) $y = 4x - 9$
   $y = x - 3$

7) $y = -5$
   $5x + 4y = -20$

15) $8x - 6y = -20$
    $-16x + 7y = 30$

17) $-8x - 10y = 24$
    $6x + 5y = 2$