GW PS 8.4 & IA 3.5: Solving Formulas

Name: **Group #:**

1) Solve the following formula for t if $E = 2.95, s = 4.83$, and $n = 9$: $E = t \cdot \frac{s}{\sqrt{n}}$

2) Solve the following formula for z if $x = 58.98, \overline{x} = 54.7$, and $s = 2.6$: $x = \overline{x} + zs$

3) Solve the following formula for x if $z = 2.1, \overline{x} = 317.2$, and $s = 23.2$: $z = \frac{x - \bar{x}}{s}$

4) For the data values $x_1 = 2.3, x_2 = 1.7,$ and $x_3 = 2.9$, the mean is $\bar{x} = 2.3$. Evaluate the standard deviation formula for this data: (note: in this case, $n = 3$)

$$s = \sqrt{\frac{\sum(x_i - \bar{x})^2}{n - 1}}$$

5) Solve the following formula for σ:

$$\sigma_{\overline{x}} = \frac{\sigma}{\sqrt{n}}$$

6) Solve the following formula for $P(E\ AND\ F)$:

$$P(E\ OR\ F) = P(E) + P(F) - P(E\ AND\ F)$$

7) Solve the following formula for x_1:

$$y - y_1 = m(x - x_1)$$

8) Solve the following formula for r:

$$z_0 = \frac{r - \mu_r}{\sigma_r}$$

9) Solve the following formula for x:

$$\frac{x}{a} + \frac{y}{a} = 1$$

<u>Squaring a principle square root</u>

If x is nonnegative, then

$$\left(\sqrt{x}\right)^2 = x.$$

In words: *If you take the square root of a number, and then you square that result, you get the number back.*

Strategy: To solve a square root equation in one variable,

1) Isolate the square root term on one side of the equation.
2) Square both sides.
3) Repeat steps 1 & 2 until no square root expressions remain.
4) Solve the new equation.
5) Check each candidate solution in the original equation.

10) Solve the equation for x:

$$1 + \sqrt{x} = 4$$

11) Solve the following formula for n:

$$E = z \cdot \frac{s}{\sqrt{n}}$$

12) Solve the following formula for n:

$$\sigma_{\bar{x}} = \frac{\sigma}{\sqrt{n}}$$

13) Solve the following formula for n:

$$r = \frac{z_0}{\sqrt{n-1}}$$

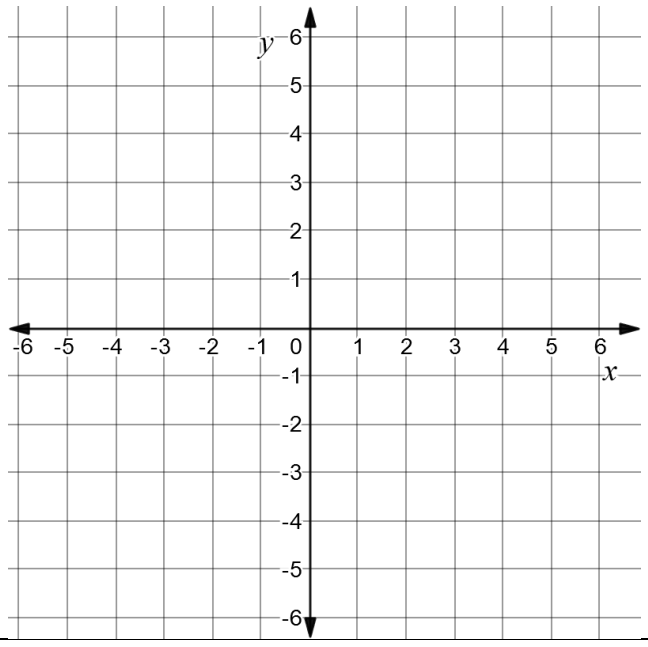
Graphing a linear equation in two variables

14) Solve each of the following linear equations in two variables for y. For each, note that your final answer should be an equation of line in slope-Intercept form: Graph it in the given coordinate plane. Check your work by graphing the original equation in desmos.com and comparing to the graph you produced.

a) $2x + 4y = 8$

b) $2(y - 2x) - 3 = 16 - 3(2y + 1)$

(a)



(b)