

Exercises:

Memorize, (sooner rather than later):

Slope of a line: slope = $m = (y_1 - y_2) / (x_1 - x_2)$.

Forms of a line:

Slope Intercept Form:

$$y = m \cdot x + b .$$

Point Slope Form:

$$(y - y_1) = m \cdot (x - x_1) .$$

Standard Form:

$$Ax + By = C .$$

Note: x or y with a subscript is a particular point. In the above, x , without a subscript or little number in the bottom corner, is our *independent variable*.

y , also without a subscript, is our *dependent variable*. The value of y in these equations depends on what we “plug in” for x .

Exercises:

Solve for Y:

$$Y = 5 * x . \text{ "plug in" } 5 \text{ for } x .$$

$$Y = 2.5 * x . \quad x = 2 .$$

$$Y = 10 * x . \quad x = 3 .$$

$$Y = 5 * x + 10 . \quad x = 5 .$$

$$Y = 5.75 * x + 10 . \quad x = 3 .$$

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$$Y = 5.75 * x + 7.57 . \quad x = 10 .$$

$$Y = (5^2) * x + 5.5 . \quad x = 1 .$$

$$Y = (5^2) * x - 5.5 . \quad x = 1 . \quad (\text{Hint: subtract } 6, \text{ instead of } 5.5, \text{ but then add } 0.5 .)$$

$$Y = (\sqrt{2})^2 * x + (0.33) . x = 1 . \quad (\text{Note: } 0.33 \text{ is } \underline{\text{not}} \text{ equal to } (1/3) , \text{ technically speaking.})$$

(Watch, I switched the position of the variables.)

$$X = 10 * Y + 0 . X = 56 .$$

$$X = (\sqrt[3]{3})^3 * Y + 0 . X = 3^2 .$$

$$X = (\sqrt[3]{27}) * Y + 0 . X = (1/3) . \quad (\text{Hint: you will get a fraction for } Y.)$$

Solve for X:

$$X^2 = (10 - 15)^2 + (Y - 7)^2 . Y = -5 . \quad (\text{Hint: Use a calculator only to take the square root. The answer is a whole integer and its } \textit{opposite}.)$$

$$X = 4^4 = 4*4*4*4 .$$

$$X = 5^4 = 5 * 5 * 5 * 5 .$$

$$X = 2^5 . X = 2^6 . X = 2^7 . X = 2^8 . X = 2^9 . X = 2^{10} .$$

$$X = 2^{(-1)} . X = 2^{(-2)} . X = 2^{(-3)} . X = 2^{(-4)} . \quad (\text{Hint: } 3^{(-1)} = (1/3) , \text{ and } 3^{(-2)} = (1/9)) .$$

Note: ($2^0 = 3^0 = 4^0 = 1$, and etc. by definition.)