To change from slope intercept to general form ① get rid of fractions

② Rearrange to $Ax \pm By = C$

$4(y) = \left(\frac{3}{4}x + 8\right)4$

$A, B, C \rightarrow$ not fractions or decimals

$A \rightarrow$ positive

$4y = 3x + 32$

$-4y \quad -4y$

$0 = 3x - 4y + 32$

$3x - 4y + 32 = 0$

$-32 \quad -32$

$3x - 4y = -32$

Slope intercept form		General form
$y = \frac{3}{4}x + 8$	$\longrightarrow$	$3x - 4y = -32$
$y = -\frac{3}{2}x + 6$	$\longrightarrow$	$3x + 2y = 12$
$y = \frac{1}{2}x - 4$	$\longrightarrow$	$x - 2y = 8$
$y = 2x - 1$	$\longrightarrow$	$2x - y = 1$

numerator of slope = A (always positive)
denominator of slope = B (opp sign of slope)

$\text{Slope} = \frac{A}{B}$	$Ax - By = C$
$\text{Slope} = -\frac{A}{B}$	$Ax + By = C$

General Form

$Ax \pm By = C$

no Fractions!

A should be positive

1. Give the equation of a line (in general form) that passes through (4, -1) and is perpendicular to the line that has an x-intercept of -3 and a y-intercept of 6.

x y

$(0, 6)$ $(-3, 0)$

x_2 y_2 x_1 y_1

① Slope intercept then rearrange to general form

$m = \frac{6-0}{0-(-3)} = \frac{6}{3} = 2$ perpendicular $= -\frac{1}{2}$

↓ Slope of our line

$y = mx + c$

$y = -\frac{1}{2}x + c$

$-1 = -\frac{1}{2}(4) + c$

$-1 = -2 + c$

$+2 \quad +2$

$1 = c$

$2(y) = \left(-\frac{1}{2}x + 1\right)2$

$2y = -x + 2$

$+x \quad +x$

$x + 2y = 2$

1. Give the equation of a line (in general form) that passes through (4, -1) and is perpendicular to the line that has an x-intercept of -3 and a y-intercept of 6.

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↓ Slope of our line

$Ax \pm By = C$

$x + 2y = C$

$4 + 2(-1) = C$

$4 + -2 = C$

$2 = C$

$\boxed{x + 2y = 2}$

2. A phone plan charges a base fee of $30 plus $0.20 per minute of long distance calling.

x=0 y=30 (0, 30)

every 1x is 0.2y

run rise

m = 0.2/1 = 0.2

(a) Write an equation describing this plan. Identify the variables.

m=0.2 y-int (0, 30)

x = independent = time (min)

y = dependent = cost ($)

y = 0.2x + 30

(b) How much would the bill be if you talked for 60 minutes long distance?

y = 0.2x + 30

y = 0.2(60) + 30

y = 12 + 30 → y = 42

Sentence $42

(c) If the bill was $80, how many minutes were spent talking long distance?

80 = 0.2x + 30

−30 −30

50 = 0.2x

0.2 0.2

250 = x

Sentence

3. An electrician charges $50.00 for one hour's work and $155.00 for four hours of work.

(4, 155) (1, 50)

X = time (hrs)
y = charge ($)

(a) Determine the electrician's truck charge and hourly rate.

$m = \frac{155-50}{4-1} = \frac{105}{3} = 35$ → hourly rate

Truck charge is when x = 0
↳ $15

$y = 35x + c$
$50 = 35(1) + c$
$15 = c$ → y-int (0, 15)

(b) Determine how much the electrician will charge for a 16 hour job

$y = 35x + 15$
$y = 35(16) + 15$
$y = 575$

$575

(c) How much did the electrician work if he charged $365.00?

$365 = 35x + 15$
$-15 \quad -15$
$350 = 35x$

$\frac{350}{35} = \frac{35x}{35}$

$x = 10$