

$$\textcircled{12} \quad \begin{array}{r} 2y + 4x = 8 \\ \quad -4x \quad -4x \\ \hline \end{array}$$

$$\frac{2y}{2} = \frac{8 - 4x}{2}$$

$$y = \frac{8}{2} - \frac{4}{2}x$$

$$y = 4 - 2x$$

or

$$y = -2x + 4$$

When $x = -2$

$$y = -2(-2) + 4$$

$$y = 4 + 4$$

$$y = 8$$

When $x = 1$

$$y = -2(1) + 4$$

$$y = -2 + 4$$

$$y = 2$$

When $x = 3$

$$y = -2(3) + 4$$

$$y = -6 + 4$$

$$y = -2$$

$$\textcircled{13} \quad \begin{array}{r} 3x - 5y = 9 \\ -3x \quad -3x \end{array}$$

$$\frac{-5y}{-5} = \frac{9 - 3x}{-5}$$

distribute

$$y = \ominus \frac{9 - 3x}{5}$$

$$y = \frac{-9 + 3x}{5}$$

or

$$y = \frac{3x - 9}{5}$$

* Leave as one big fraction. No numbers go into each other, so if you break it up you will have 2 fractions

When $x = -1$

$$\frac{-9 + 3(-1)}{5} = \frac{-9 - 3}{5} = \frac{-12}{5}$$

When $x = 0$

$$\frac{-9 + 3(0)}{5} = \frac{-9}{5}$$

When $x = 1$

$$\frac{-9 + 3(1)}{5} = \frac{-9 + 3}{5} = \frac{-6}{5}$$

$$(14) \quad 4x = 3y - 7$$

+7 +7

$$\frac{4x + 7}{3} = \frac{3y}{3}$$

$$y = \frac{4x + 7}{3}$$

* Leave as one big fraction!

When $x = 4$

$$y = \frac{4(4) + 7}{3}$$

$$y = \frac{16 + 7}{3}$$

$$y = \frac{23}{3}$$

When $x = 5$

$$y = \frac{4(5) + 7}{3}$$

$$y = \frac{27}{3}$$

$$y = 9$$

When $x = 6$

$$y = \frac{4(6) + 7}{3}$$

$$y = \frac{31}{3}$$

$$(15) \quad 5x = -4y + 4$$

-4 -4

$$\frac{5x - 4}{-4} = \frac{-4y}{-4}$$

distribute

$$y = \frac{5x - 4}{4} \text{ or } \frac{-5x + 4}{4}$$

* Easier to leave as one big fraction

When $x = 1$

$$y = \frac{-5(1) + 4}{4} = \frac{-1}{4}$$

When $x = 2$

$$y = \frac{-5(2) + 4}{4} = \frac{-10 + 4}{4} = \frac{-6}{4}$$

When $x = 3$

$$y = \frac{-5(3) + 4}{4} = \frac{-11}{4}$$

$-1 \frac{2}{4}$
 $-1 \frac{1}{2}$
 $-2 \frac{3}{4}$
 $-2 \frac{1}{2}$

$$(16) \quad \begin{array}{r} 2y + 7x = 4 \\ \quad -7x \quad -7x \end{array}$$

$$\frac{2y}{2} = \frac{4-7x}{2}$$

$$y = \frac{4-7x}{2} \text{ or } \frac{-7x+4}{2}$$

$$x = 5$$

$$\frac{-7(5)+4}{2} = \frac{-35+4}{2} = \frac{-31}{2} = -15\frac{1}{2}$$

$$x = 10$$

$$\frac{-7(10)+4}{2} = \frac{-70+4}{2} = \frac{-66}{2} = -33$$

$$x = 15$$

$$\frac{-7(15)+4}{2} = \frac{-105+4}{2} = \frac{-101}{2} = -50\frac{1}{2}$$

$$(17) \quad x - 4y = -4 \quad \leftarrow \begin{array}{l} \text{factor out} \\ \text{neg} \end{array}$$

$$\frac{-4y}{-4} = \frac{-4-x}{-4} \text{ or } \frac{4+x}{4}$$

$$x = -2$$

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

$$x = 4$$

$$\frac{4+4}{4} = \frac{8}{4} = 2$$

$$x = 6$$

$$\frac{4+6}{4} = \frac{10}{4} = 2\frac{2}{4} = 2\frac{1}{2}$$

$$(18) \quad \frac{6x}{-7} = \frac{7-4y}{-7}$$

$$\frac{6x-7}{-4} = \frac{-4y}{-4}$$

$$y = \frac{6x-7}{-4} \text{ or } \frac{-6x+7}{4}$$

$$x = -2$$

$$\frac{-6(-2)+7}{4} = \frac{12+7}{4} = \frac{19}{4} = 4\frac{3}{4}$$

$$x = -1$$

$$\frac{-6(-1)+7}{4} = \frac{6+7}{4} = \frac{13}{4} = 3\frac{1}{4}$$

$$x = 0$$

$$\frac{-6(0)+7}{4} = \frac{7}{4} = 1\frac{3}{4}$$

$$(19) \quad mx + nx = p$$

factor out x

$$\frac{x(m+n)}{(m+n)} = \frac{p}{m+n}$$

$$x = \frac{p}{m+n}$$

(20) $ax - x = c$
 * Factor out x
 $x(a-1) = c$
 $\frac{x(a-1)}{a-1} = \frac{c}{a-1}$

$x = \frac{c}{a-1}$

(23) $S = c + xC$
 $\frac{S-c}{c} = \frac{xC}{c}$

$\frac{S-c}{c} = x$

(21) $\frac{rx + sx}{t} = 1$

$x(r+s) = t$

Multiply by reciprocal

$x \left(\frac{r+s}{t} \right) \cdot \left(\frac{t}{r+s} \right) = 1 \left(\frac{t}{r+s} \right)$

$x = \frac{t}{r+s}$

(22) $y = \frac{x-v}{b}$

$y = \frac{x}{b} - \frac{v}{b}$
 $\frac{+v}{b} \quad + \frac{v}{b}$

$b \cdot \left(y + \frac{v}{b} \right) = \frac{x}{b} \cdot b$

$by + \frac{bv}{b} = x$

$by + v = x$

(24) $\frac{x}{a} = \frac{y}{b} \cdot a$ alphabetical
 \downarrow

$x = \frac{ya}{b}$ or $\frac{ay}{b}$

(25) $A = Bxt + C$
 $A - C = Bxt$
 $\frac{A-C}{Bt} = \frac{Bxt}{Bt}$

$\frac{A-C}{Bt} = x$

(26) $4(x-b) = x$

$4x - 4b = x$
 $-4x \quad -4x$

$-4b = -3x$
 $\frac{-4b}{-3} = \frac{-3x}{-3}$

$x = \frac{-4b}{-3}$ or $\frac{4b}{3}$

factor out