


$$\begin{aligned}x - 3y &= -5 \implies x = 3y - 5 \\4x - 2y &= 6\end{aligned}$$


$$4(3y - 5) - 2y = 6$$

$$12y - 20 - 2y = 6$$

$$10y - 20 = 6$$

$$10y = 26$$

$$y = \frac{26}{10} = \boxed{\frac{13}{5} = y}$$

$$x = 3y - 5 = 3\left(\frac{13}{5}\right) - 5 = \frac{39}{5} - \frac{25}{5} = \boxed{\frac{14}{5} = x}$$

Work many more problems than
the ones I give you.

If there's a hole in the notes,

FILL IT.

ASK QUESTIONS.

Knowing yourself -

The difference between thinking
you know & knowing.

Self-Reflection

↳ Pick probs out of book.

Try 'em.

Explain them in words, to yourself.

Scientific Notation

$$52 \times \underline{1000} = 52,000$$

$$52.000000$$

Moved the decimal 3 places.

$$1000 = 10^3$$

$$10^3 = 10 \cdot 10 \cdot 10 = 1000$$

10^3 is nicer than 1000

$$\underline{1,000,000,000,000} = 1 \text{ trillion.}$$

$$= 10^{12}$$



5.2×10^{12} is 5.2 trillion.

Scientific Notation:

$$a \times 10^b \leftarrow \text{an integer}$$



$$1 \leq a < 10$$

Convert $\underline{3789}$ to scientific notation

$$= 3.789 \times 10^3$$

$$\frac{987}{100} = \underline{987} \times 10^{-2} = 9.87$$

$$100 = 10^2, \quad \frac{1}{100} = 10^{-2}$$

5.2

$$\left(\frac{x^2 y^{-3}}{z^5} \right)^2$$

$$\left(\frac{x^2}{y^3 z^5} \right)^2$$

$$= \frac{(x^2)^2}{(y^3)^2 (z^5)^2} = \frac{x^4}{y^6 z^{10}}$$

$$\left(\frac{x^2 y^{-3}}{y^2 x^3 z} \right)^5$$

$$= \left(\frac{x^2}{y^2 y^3 x^3 z} \right)^5 = \left(\frac{x^2}{y^5 x^3 z} \right)^5 = \left(\frac{1}{y^5 x^3 z} \right)^5$$

$$\frac{1^5}{(y^5)^5 (x^3)^5 (z^1)^5} = \frac{1}{y^{25} x^{15} z^5}$$

$$(ab)^c = a^c b^c$$

$$(a^b)^c = a^{bc}$$

$$\frac{(x^2)^2 (y^{-3})^2}{(z^5)^2} = \frac{x^4 y^{-6}}{z^{10}}$$

$$= \frac{x^4}{y^6 z^{10}}$$

$$a^b a^c = a^{b+c}$$

$$\frac{1}{x^1} = \frac{x^2}{x^3} = \frac{\cancel{x} \cancel{x}}{\cancel{x} \cancel{x} \cancel{x}}$$

$$\frac{2}{5}x^2 - \frac{3}{9}x - \left(\frac{7}{15}x^2 - \frac{5}{6}x\right)$$

$$\frac{2}{5}x^2 - \frac{3}{9}x - \frac{7}{15}x^2 + \frac{5}{6}x$$

$$\frac{2}{5}x^2 - \frac{7}{15}x^2 - \frac{3}{9}x + \frac{5}{6}x$$

$$x^2 \left(\frac{2}{5} - \frac{7}{15} \right) + x \left(-\frac{3}{9} + \frac{5}{6} \right) = -\frac{1}{15}x^2 + \frac{11}{24}x$$

$$-x \left(\frac{3}{9} - \frac{5}{6} \right)$$

$$\frac{2}{5} \cdot \frac{3}{3} - \frac{7}{15} = \frac{6-7}{15} = -\frac{1}{15}$$

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

$$-\frac{3}{2 \cdot 2 \cdot 2} \cdot \frac{3}{3} + \frac{5}{2 \cdot 3} \cdot \frac{2 \cdot 2}{2 \cdot 2} = \frac{-9+20}{24} = \frac{11}{24}$$

$$\frac{2}{5}x^2 - \frac{7}{15}x^2 - \frac{3}{9}x + \frac{5}{6}x$$

$$= \frac{2x^2}{5} \cdot \frac{3}{3} - \frac{7x^2}{15} - \frac{3x}{2 \cdot 2} \cdot \frac{3}{3} + \frac{5x}{2 \cdot 3} \cdot \frac{2 \cdot 2}{2 \cdot 2}$$

$$\begin{array}{r} 2 \overline{) 8} \\ 2 \overline{) 4} \\ \underline{} \\ 2 \end{array}$$

$$= \frac{6x^2 - 7x^2}{15} - \frac{9x + 20x}{24}$$

$$= -\frac{x^2}{15} + \frac{11x}{24} = -\frac{1}{15}x^2 + \frac{11}{24}x$$

$$\frac{11}{24}x \text{ BAD}$$

$$(\frac{11}{24})x$$