October 5th, 2015

Unit 2: Solving Equations
Lesson 2.3: Transforming Equations

Get Ready:

1) What is the coefficient of a solved variable?

\[ \frac{1}{2}x = 1 \]

2) What happens if you check an equation with an incorrect solution?

One side will be different from the other.

Solve these equations & check your solution

1) \(-f - 2f = f\)

2) \(\frac{1}{2} = \frac{n - 2}{8}\)

3) \(\frac{n - 5}{2} = \frac{n - 2}{8}\)

4) \(\frac{n - 5}{2} = 1 + \frac{2 - n}{8}\)
2.3 Transforming Formulas

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Get Ready:

Solve these equations & check your solution

1) \(-f - 2f = f\)

\[
\begin{align*}
\frac{-f}{2} + \frac{f}{2} &= 0 \\
-2f &= 2f \\
\frac{-2f}{2} &= \frac{2f}{2} \\
0 &= 0
\end{align*}
\]

2) \(
\frac{1}{2} \cdot 2(n - 2) = 8 \\
8 &= 2n - 4 \\
8 &= 2n \\
4 &= n
\)

3) \(
\frac{n - 5}{2} = \frac{n - 2}{8}
\)

4) \(
\frac{n - 5}{2} = 1 + \frac{2 - n}{8}
\)
Some More Solving...

- Solve for a

\[
\begin{align*}
-2 + 3a &= 10 \\
\underline{+2} \quad +2 \\
3a &= 12 \\
\frac{3a}{3} &= \frac{12}{3} \\
a &= 4
\end{align*}
\]

\[
\begin{align*}
-b + 3a &= 10 \\
\underline{+b} \quad +b \\
3a &= 10 + b \\
\frac{3a}{3} &= \frac{10+b}{3} \\
a &= \frac{10+b}{3}
\end{align*}
\]

\[
\begin{align*}
-b + 3a &= c \\
\underline{+b} \quad +b \\
3a &= c + b \\
\frac{3a}{3} &= \frac{c+b}{3} \\
a &= \frac{c+b}{3}
\end{align*}
\]
Some More Solving... Solve for v

\[ 2\left( \frac{7 - 6v}{2} \right) = 11 \]

\[ \frac{7 - 6v}{2} = \frac{11}{2} \]

\[ 7 - 6v = 11 \]

\[ 7 - 6v - 7 = 11 - 7 \]

\[ -6v = 4 \]

\[ -6v = \frac{4}{1} \]

\[ v = \frac{-4}{-6} \]

\[ v = \frac{2}{3} \]

\[ p \cdot \frac{e - 6v}{p} = 11 \cdot p \]

\[ e - 6v = 11 \]

\[ \frac{e - 6v}{1} = \frac{11 \cdot p}{1} \]

\[ e - 6v = 11p \]

\[ e - 6v - e = 11p - e \]

\[ -6v = 11p - e \]

\[ -6v - 6 = 11p - e \]

\[ v = \frac{11p - e}{-6} \]

\[ p \cdot \frac{e - tv}{p} = w \cdot p \]

\[ e - tv = w \cdot p \]

\[ e - tv - e = w \cdot p - e \]

\[ -tv = wp - e \]

\[ v = \frac{wp - e}{-t} \]
Some More Solving... Solve for $t$

\[
y = 4\pi t^2 + 7
\]
\[
\frac{-7}{y - \frac{7}{4\pi}} = \frac{4\pi \cdot t^2}{4\pi}
\]
\[
\sqrt{\frac{y - \frac{7}{4\pi}}{\frac{7}{4\pi}}} = \sqrt{t^2}
\]
\[
\sqrt{\frac{y - \frac{7}{4\pi}}{\frac{7}{4\pi}}} = t
\]

\[
y = h\pi t^2 + p
\]
\[
\frac{-p}{y - \frac{p}{h\pi}} = \frac{h\pi \cdot t^2}{h\pi}
\]
\[
\sqrt{\frac{y - \frac{p}{h\pi}}{\frac{p}{h\pi}}} = \sqrt{t^2}
\]
\[
\sqrt{\frac{y - \frac{p}{h\pi}}{\frac{p}{h\pi}}} = t
\]
Literal Equations are equations with multiple variables

\[ ax + b = c \]

a, x, b and c can represent any number.
You must solve for the stated variable using normal solving equation methods