F2 *Algebraic Concepts* Data Sheets

Data Sheets

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Data Sheet F2.1 *Simplifying Expressions*

Simplify:

$4a + 3a + 6 + 2 =$ ☐

$8x + y - 4x - 6y =$ ☐

Remove the brackets:

$4(x + 3) =$ ☐

$3(5 - x) =$ ☐

$x(4 + x) =$ ☐

$3x(2x - 3) =$ ☐

Simplify:

$2(x + 5) + 3(x + 1) =$ ☐ $=$ ☐

$x(x - 3) + 3(x + 1) =$ ☐ $=$ ☐

$\frac{2x}{9} - \frac{x+1}{6} = \frac{\square - \square}{\square} = \frac{\square}{\square}$

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Data Sheet F2.2

Simple Equations

Solve:

$$\boxed{x + 5 = 7}$$

$$x + 5 - \square = 7 - \square$$

$$x = \square$$

$$\boxed{\frac{3x}{4} = 12}$$

$$\frac{3x}{4} \times \frac{\square}{\square} = 12 \times \frac{\square}{\square}$$

$$x = \square$$

$$\boxed{2x + 3 = 9}$$

$$2x + 3 - \square = 9 - \square$$

$$2x = \square$$

$$2x \times \frac{1}{\square} = \frac{\square}{\square}$$

$$x = \square$$

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Data Sheet F2.3

Linear Equations 1

Solve:

$$\boxed{2x + 5 = x + 7}$$

$$2x + 5 - \square = x + 7 - \square$$

$$\square x + 5 = 7$$

$$\square x + 5 - \square = 7 - \square$$

$$x = \square$$

$$\boxed{3x + 1 = 11 - x}$$

$$3x + 1 + \square = 11 - x + \square$$

$$\square x + 1 = 11$$

$$\square x + 1 - \square = 11 - \square$$

$$\square x = \square$$

$$x = \frac{\square}{\square}$$

$$x = \square$$

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Data Sheet F2.4

Linear Equations 2

Solve:

$$3(x - 1) = 2(1 - 2x)$$

$$\square x - \square = \square - \square x$$

$$\square x + \square x = \square + \square$$

$$\square x = \square$$

$$x = \square$$

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Data Sheet F2.5 *Equations in Context*

PROBLEM

Arianne, Jovan and Kerry were playing a card game.

Arianne scored p points.
Jovan scored 3 points fewer than Arianne.
Kerry scored twice as many points as Jovan.
Together they scored 39 points.

How many points did Arianne score?

SOLUTION

Points scored by Jovan = ☐

Points scored by Kerry = ☐

Total points scored = p + ☐ + ☐

= 39

Hence equation is: ☐ = 39

Solving gives p = ☐

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Data Sheet F2.6 *Algebraic Manipulation 1*

PROBLEM

Make t the subject of the formula

$$p = \frac{2t}{a - t}$$ (a constant)

SOLUTIONs

Multiply both sides by $(a - t)$ to give

$$p(a - t) = \frac{2t}{(a - t)} \times (a - t)$$

$$\square - \square\, t = \square\, t$$

$$\square = \square\, t$$

$$t = \frac{\square}{\square}$$

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Data Sheet F2.7 *Algebraic Manipulation 2*

PROBLEM

Make x the subject of the formula

$$p = \sqrt{\frac{x + 4}{x}}$$

SOLUTION

Square both sides to give

$$p^2 = \frac{\square}{\square}$$

$$p^2 \times \square = \square$$

$$p^2 \times \square - \square = 4$$

$$\left(\square\right) x = 4$$

$$x = \frac{4}{\left(\square\right)}$$

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Data Sheet F2.8 *Algebraic Fractions*

Simplify:

$$\frac{x}{4} + \frac{x}{6} = \frac{\square + \square}{12}$$

$$= \frac{\square\, x}{12}$$

$$= \square$$

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

$$= \frac{\square}{x(x-1)}$$

$$\frac{x-2}{2(x^2-4)} = \frac{x-2}{2(\square)(\square)}$$

$$= \frac{1}{2(\square)}$$

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