

**ALGEBRA: Linear equations with unknowns on both sides**

Date:

Name:

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Copy and complete each problem into your exercise book and solve for the variable.

*Show all your working. Set your working out clearly and neatly as you have been taught!*

**[A]**  $7f + 1 = 10f - 11$

**[B]**  $29n - 9 = 19n + 101$

**[C]**  $11y + 1 = 17y - 53$

**[D]**  $19d - 13 = 13d + 65$

**[E]**  $10k + 1 = 15k - 34$

**[F]**  $34d - 13 = 23d + 53$

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*Round your answers to the below equations to 1 d.p., if necessary*

**[G]**  $13.3n + 2 = 16.3n - 31.9$

**[H]**  $21f - 6 = 14f + 48.6$

**[J]**  $14.5d + 2 = 18.5d - 48$

**[K]**  $27d - 12 = 16d + 49.6$

# ANSWERS

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[A]

$$7f + 1 = 10f - 11$$

$+ 11$   $+ 11$

$$7f + 12 = 10f$$

$- 7f$   $- 7f$

$$\frac{12}{3} = \frac{3f}{3}$$

$$4 = f$$

$$\boxed{f = 4}$$

[B]

$$29n - 9 = 19n + 101$$

$+ 9$   $+ 9$

$$29n = 19n + 110$$

$- 19n$   $- 19n$

$$\frac{10n}{10} = \frac{110}{10}$$

$$\boxed{n = 11}$$

[C]

$$11y + 1 = 17y - 53$$

$+ 53$   $+ 53$

$$11y + 54 = 17y$$

$- 11y$   $- 11y$

$$\frac{54}{6} = \frac{6y}{6}$$

$$9 = y$$

$$\boxed{y = 9}$$

[D]

$$19d - 13 = 13d + 65$$

$+ 13$   $+ 13$

$$19d = 13d + 78$$

$- 13d$   $- 13d$

$$\frac{6d}{6} = \frac{78}{6}$$

$$\boxed{d = 13}$$

[E]

$$10k + 1 = 15k - 34$$

$+ 34$   $+ 34$

$$10k + 35 = 15k$$

$- 10k$   $- 10k$

$$\frac{35}{5} = \frac{5k}{5}$$

$$7 = k$$

$$\boxed{k = 7}$$

[F]

$$34d - 13 = 23d + 53$$

$+ 13$   $+ 13$

$$34d = 23d + 66$$

$- 23d$   $- 23d$

$$\frac{11d}{11} = \frac{66}{11}$$

$$\boxed{d = 6}$$

[G]

$$13.3n + 2.0 = 16.3n - 31.9$$

*+ 31.9*    *+ 31.9*

$$13.3n + 33.9 = 16.3n$$

*- 13.3n*    *- 13.3n*

$$\frac{33.9}{3} = \frac{3n}{3}$$

$$11.3 = n$$

$n = 11.3$
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[H]

$$21.0f - 6.0 = 14.0f + 48.6$$

*+ 6.0*    *+ 6.0*

$$21.0f = 14.0f + 54.6$$

*- 14f*    *- 14f*

$$\frac{7f}{7} = \frac{54.6}{7}$$

$f = 7.8$
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[J]

$$14.5d + 2.0 = 18.5d - 48.0$$

*+ 48.0*    *+ 48.0*

$$14.5d + 50.0 = 18.5d$$

*- 14.5d*    *- 14.5d*

$$\frac{50.0}{4} = \frac{4d}{4}$$

$$12.5 = d$$

$d = 12.5$
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[K]

$$27.0d - 12.0 = 16.0d + 49.6$$

*+ 12.0*    *+ 12.0*

$$27.0d = 16.0d + 61.6$$

*- 16d*    *- 16d*

$$\frac{11d}{11} = \frac{61.6}{11}$$

$d = 5.6$
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