

An Introduction to Algebra

National Curriculum Objectives:

Mathematics Year 6: Use simple formulae. [More resources with this objective.](#)

Differentiation:

Beginner Addition to 20. Symbols represent numbers up to 20. Aimed at Year 6 Emerging.

Easy Addition and subtraction. Symbols represent numbers up to 30. Aimed at Year 6 Emerging.

Tricky Addition, subtraction and multiplication. Symbols represent numbers up to 60. Aimed at Year 6 Developing.

Expert All four operations. Symbols represent numbers up to 200 and are in different positions within the number sentences. Aimed at Year 6 Secure.

Brainbox All four operations. Symbols represent numbers up to 200. Balancing equations using two symbols where the amount of one symbol is given. Aimed at Year 6 Mastery.

Genius All four operations. Four symbols are used with amounts given. Answers go up to 3 digits. Includes multiplying symbols and calculating square numbers. Aimed at Year 6 Mastery.

Did you like this resource? Don't forget to review it on our website.

An Introduction to Algebra

Each symbol represents a number. Use your knowledge of inverse operations to calculate the value of each symbol.

$\triangle + 5 = 20$	$\triangle =$
$\star + 8 = 18$	$\star =$
$\square + 4 = 16$	$\square =$
$\bigcirc + 9 = 25$	$\bigcirc =$
$\odot + 7 = 21$	$\odot =$
$\heartsuit + 6 = 23$	$\heartsuit =$
$\smiley + 10 = 30$	$\smiley =$
$\text{pentagon} + 11 = 24$	$\text{pentagon} =$
$\text{star} + 12 = 30$	$\text{star} =$
$\text{hexagon} + 14 = 33$	$\text{hexagon} =$

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Each symbol represents a number. Use your knowledge of inverse operations to calculate the value of each symbol.

$\triangle + 5 = 20$	$\triangle = 15$
$\star + 8 = 18$	$\star = 10$
$\square + 4 = 16$	$\square = 12$
$\bigcirc + 9 = 25$	$\bigcirc = 16$
$\odot + 7 = 21$	$\odot = 14$
$\heartsuit + 6 = 23$	$\heartsuit = 17$
$\smiley + 10 = 30$	$\smiley = 20$
$\text{pentagon} + 11 = 24$	$\text{pentagon} = 13$
$\text{star} + 12 = 30$	$\text{star} = 18$
$\text{hexagon} + 14 = 33$	$\text{hexagon} = 19$

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Each symbol represents a number. Use your knowledge of inverse operations to calculate the value of each symbol.

$\triangle + 15 = 31$	$\triangle =$
$\star + 18 = 38$	$\star =$
$\square - 5 = 10$	$\square =$
$\bigcirc + 19 = 40$	$\bigcirc =$
$\odot - 7 = 16$	$\odot =$
$\heartsuit - 9 = 17$	$\heartsuit =$
$\smiley + 20 = 50$	$\smiley =$
$\text{pentagon} - 11 = 14$	$\text{pentagon} =$
$\text{star} - 15 = 15$	$\text{star} =$
$\text{hexagon} + 24 = 49$	$\text{hexagon} =$

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Each symbol represents a number. Use your knowledge of inverse operations to calculate the value of each symbol.

$\triangle + 15 = 31$	$\triangle = 16$
$\star + 18 = 38$	$\star = 20$
$\square - 5 = 10$	$\square = 15$
$\bigcirc + 19 = 40$	$\bigcirc = 21$
$\odot - 7 = 16$	$\odot = 23$
$\heartsuit - 9 = 17$	$\heartsuit = 26$
$\smiley + 20 = 50$	$\smiley = 30$
$\text{pentagon} - 11 = 14$	$\text{pentagon} = 25$
$\text{star} - 15 = 15$	$\text{star} = 30$
$\text{hexagon} + 24 = 49$	$\text{hexagon} = 25$

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Each symbol represents a number. Use your knowledge of inverse operations to calculate the value of each symbol.

$\triangle + 35 = 67$	$\triangle =$
$\star - 23 = 26$	$\star =$
$\square \times 5 = 35$	$\square =$
$\bigcirc - 29 = 36$	$\bigcirc =$
$\odot \times 3 = 24$	$\odot =$
$\heartsuit + 42 = 95$	$\heartsuit =$
$\smiley \times 9 = 54$	$\smiley =$
$\text{pentagon} - 32 = 16$	$\text{pentagon} =$
$\text{star} \times 8 = 56$	$\text{star} =$
$\text{hexagon} \times 12 = 108$	$\text{hexagon} =$

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Each symbol represents a number. Use your knowledge of inverse operations to calculate the value of each symbol.

$\triangle + 35 = 67$	$\triangle = 32$
$\star - 23 = 26$	$\star = 49$
$\square \times 5 = 35$	$\square = 7$
$\bigcirc - 29 = 36$	$\bigcirc = 65$
$\odot \times 3 = 24$	$\odot = 8$
$\heartsuit + 42 = 95$	$\heartsuit = 53$
$\smiley \times 9 = 54$	$\smiley = 6$
$\text{pentagon} - 32 = 16$	$\text{pentagon} = 48$
$\text{star} \times 8 = 56$	$\text{star} = 7$
$\text{hexagon} \times 12 = 108$	$\text{hexagon} = 9$

An Introduction to Algebra

Each symbol represents a number. Use your knowledge of inverse operations to calculate the value of each symbol.

$65 + \triangle = 146$	$\triangle =$
$\star - 83 = 97$	$\star =$
$5 \times \square = 80$	$\square =$
$\bigcirc \div 12 = 11$	$\bigcirc =$
$\odot \times 4 = 112$	$\odot =$
$36 \div \heartsuit = 12$	$\heartsuit =$
$\smiley \times 6 = 162$	$\smiley =$
$\text{pentagon} - 62 = 19$	$\text{pentagon} =$
$56 \div \text{star} = 7$	$\text{star} =$
$\text{hexagon} \div 3 = 60$	$\text{hexagon} =$

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Each symbol represents a number. Use your knowledge of inverse operations to calculate the value of each symbol.

$65 + \triangle = 146$	$\triangle = 81$
$\star - 83 = 97$	$\star = 180$
$5 \times \square = 80$	$\square = 16$
$\bigcirc \div 12 = 11$	$\bigcirc = 132$
$\odot \times 4 = 112$	$\odot = 28$
$36 \div \heartsuit = 12$	$\heartsuit = 3$
$\smiley \times 6 = 162$	$\smiley = 27$
$\text{pentagon} - 62 = 19$	$\text{pentagon} = 81$
$56 \div \text{star} = 7$	$\text{star} = 8$
$\text{hexagon} \div 3 = 60$	$\text{hexagon} = 180$

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Each symbol represents a number. Use your knowledge of inverse operations to calculate the value of each symbol.

$\triangle + \triangle = \star + \star + \triangle$	If $\triangle = 20$, then \star must =
$\square \times \square = \bigcirc - \square$	If $\square = 5$, then \bigcirc must =
$\heartsuit \div \text{smiley} = \text{smiley} + \text{smiley}$	If $\text{smiley} = 6$, then \heartsuit must =
$\text{star} + \text{star} = \text{pentagon} - \text{star}$	If $\text{star} = 8$, then pentagon must =
$\text{sun} + \text{sun} + \text{sun} = \text{hexagon} \times \text{sun}$	If $\text{sun} = 15$, then hexagon must =
$\text{rainbow} \div \text{star} = \text{star} + \text{star}$	If $\text{star} = 9$, then rainbow must =
$\text{plus} \times \text{plus} \times \text{plus} = \text{no} \times \text{plus}$	If $\text{plus} = 4$, then no must =
$\text{octagon} - \text{crescent} = \text{crescent} + \text{crescent}$	If $\text{crescent} = 36$, then octagon must =
$\text{lightning} + \text{lightning} = \text{cloud} + \text{cloud} - \text{lightning}$	If $\text{lightning} = 26$, then cloud must =
$\text{octagon} \div \text{target} = \text{target} \times \text{target}$	If $\text{target} = 6$, then octagon must =

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$\triangle + \triangle = \star + \star + \triangle$	If $\triangle = 20$, then \star must = 10
$\square \times \square = \bigcirc - \square$	If $\square = 5$, then \bigcirc must = 30
$\heartsuit \div \text{smiley} = \text{smiley} + \text{smiley}$	If $\text{smiley} = 6$, then \heartsuit must = 72
$\text{star} + \text{star} = \text{pentagon} - \text{star}$	If $\text{star} = 8$, then pentagon must = 24
$\text{sun} + \text{sun} + \text{sun} = \text{hexagon} \times \text{sun}$	If $\text{sun} = 15$, then hexagon must = 3
$\text{rainbow} \div \text{star} = \text{star} + \text{star}$	If $\text{star} = 9$, then rainbow must = 162
$\text{plus} \times \text{plus} \times \text{plus} = \text{no} \times \text{plus}$	If $\text{plus} = 4$, then no must = 16
$\text{octagon} - \text{crescent} = \text{crescent} + \text{crescent}$	If $\text{crescent} = 36$, then octagon must = 108
$\text{lightning} + \text{lightning} = \text{cloud} + \text{cloud} - \text{lightning}$	If $\text{lightning} = 26$, then cloud must = 39
$\text{octagon} \div \text{target} = \text{target} \times \text{target}$	If $\text{target} = 6$, then octagon must = 216

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Each symbol represents a number. Use your knowledge of inverse operations to calculate the value of each symbol.

$$\triangle = 10$$

$$\square = 9$$

$$\text{pentagon} = 12$$

$$\star = 8$$

$$3 \triangle + \text{pentagon} =$$

$$4 \square - \star =$$

$$6 \text{pentagon} + 5 \triangle =$$

$$7 \triangle \times 5 =$$

$$2 \star + 4 \triangle + 2 \text{pentagon} =$$

$$4 \text{pentagon} \div \star =$$

$$6 \star - 3 \triangle - 2 \square =$$

$$2 \triangle \times 2 \text{pentagon} =$$

$$8 \square \div \text{pentagon} =$$

$$\star \times \star \times \star =$$

$$3 \text{pentagon} - 2 \triangle - 2 \star =$$

$$4 \square \div 3 \text{pentagon} =$$

$$\text{pentagon}^2 + 6 =$$

$$\star^2 - 4 =$$

$$\square^2 - 3 \star =$$

$$\triangle^2 + 4 \square =$$

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$$\triangle = 10$$

$$\square = 9$$

$$\text{pentagon} = 12$$

$$\star = 8$$

$$3 \triangle + \text{pentagon} = 42$$

$$4 \square - \star = 28$$

$$6 \text{pentagon} + 5 \triangle = 122$$

$$7 \triangle \times 5 = 350$$

$$2 \star + 4 \triangle + 2 \text{pentagon} = 80$$

$$4 \text{pentagon} \div \star = 6$$

$$6 \star - 3 \triangle - 2 \square = 0$$

$$2 \triangle \times 2 \text{pentagon} = 480$$

$$8 \square \div \text{pentagon} = 6$$

$$\star \times \star \times \star = 512$$

$$3 \text{pentagon} - 2 \triangle - 2 \star = 0$$

$$4 \square \div 3 \text{pentagon} = 1$$

$$\text{pentagon}^2 + 6 = 150$$

$$\star^2 - 4 = 60$$

$$\square^2 - 3 \star = 57$$

$$\triangle^2 + 4 \square = 136$$