Algebra Mat: Working Towards Year 6

Sequences

Generate a linear sequence that starts at 3 and adds 3 each time.

_____

Describe this linear sequence:
5, 10, 15, 20,...

_____

_____

_____

Expressions

Express simple missing number problems algebraically.

p is 3 more than q.

Circle the correct expression.

p + 3 = q   **or**   p = q + 3

Simplify a + a + b: 2a + b or a + 2b?
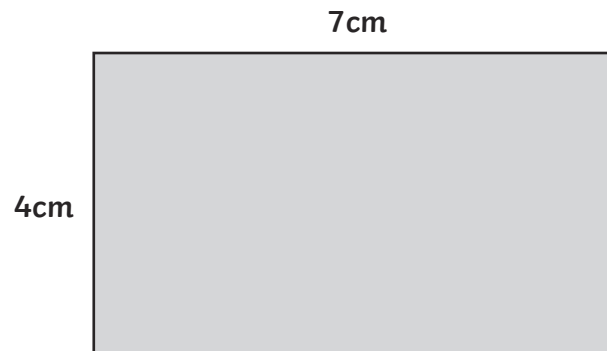
_____

Formulae

Use simple formulae.

In the formula y = x + 2,
find the value of y when x = 8.

_____

Use formulae in maths and science.

The perimeter of a rectangle = a + a + b + b
where the sides of the rectangle are **a** and **b**.

a = 4cm

b = 7cm

7cm

4cm

Perimeter = _____

Equations and Variables

Find pairs of numbers that satisfy a simple equation with two unknowns.

The sum of 2 numbers is 8,
find 3 pairs of **a** and **b**.

_____

a – b = 2,
find 3 possible solutions for a and b.

_____

cd = 6,
find 2 different pairs of numbers for c and d.

_____

Enumerate possibilities of combinations of two variables.

The difference between 2 whole numbers less than seven is 4. Find all the possible pairs of whole numbers.

_____

Find all the possible solutions when **e + f = 10** and **e** and **f** are both greater than 3.

_____

Find all the possible solutions when **2g = h** and **h** is less than 5.

_____

Algebra Mat: Working Towards Year 6 **Answers**

Sequences

Generate a linear sequence that starts at 3 and adds 3 each time.

3, 6, 9, 12, 15,...

Describe this linear sequence:
5, 10, 15, 20,...

Start at 5 and add 5 each time.

The 5 times table.

Expressions

Express simple missing number problems algebraically.

p is 3 more than q.

Circle the correct expression.

p + 3 = q   or   (p = q + 3)

Simplify a + a + b: 2a + b or a + 2b?

2a + b

Formulae

Use simple formulae.

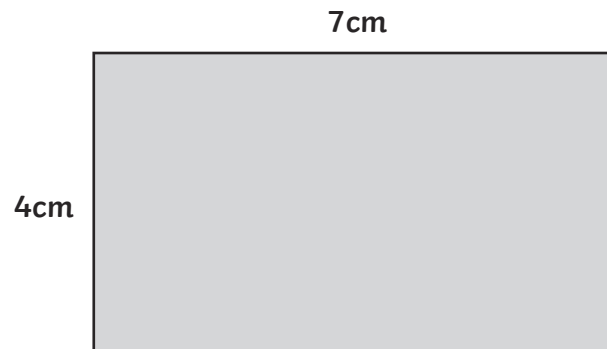In the formula y = x + 2,
find the value of y when x = 8.

y = 8 + 2 = 10

Use formulae in maths and science.

The perimeter of a rectangle = a + a + b + b where the sides of the rectangle are **a** and **b**.

a = 4cm

b = 7cm

7cm

4cm

Perimeter = **4cm + 4cm + 7cm + 7cm = 22cm**

Equations and Variables

Find pairs of numbers that satisfy a simple equation with two unknowns.

The sum of 2 numbers is 8,
find 3 pairs of **a** and **b**.

a = 2, b = 6; a = 3, b = 5; a = 4, b = 4

a – b = 2,
find 3 possible solutions for a and b.

a = 4, b = 2; a = 5, b = 3, a = 6, b = 4

cd = 6,
find 2 different pairs of numbers for c and d.

c = 6, d = 1; c = 3, d = 2

Enumerate possibilities of combinations of two variables.

The difference between 2 whole numbers less than seven is 4. Find all the possible pairs of whole numbers.

1 and 5; 2 and 6

Find all the possible solutions when **e + f = 10** and **e** and **f** are both greater than 3.

e = 4, f = 6; e = 5, f = 5; e = 6, f = 4

Find all the possible solutions when **2g = h** and **h** is less than 5.

g = 1, h = 2; g = 2, h = 4

Algebra Mat: Expected Year 6

Sequences
Generate and describe linear number sequences.

Generate a linear sequence that starts at 3 and adds 4 each time.

_____

Describe this linear sequence:
4, 9, 14, 19,...

_____

Expressions
Express missing number problems algebraically.

p is 3 more than q.

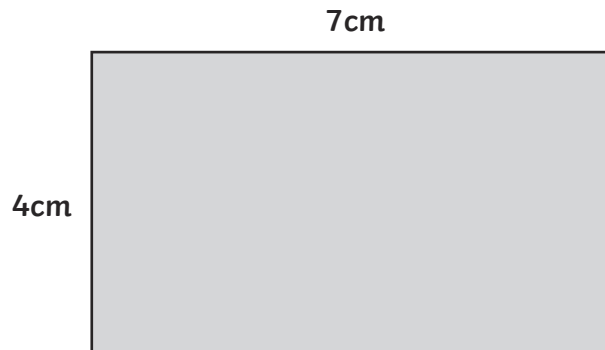Express this algebraically.

_____

Simplify a + a + a + b + b.

_____

Formulae

In the formula **y = x + 2**,
find the value of **y** when **x = 8**.

_____

Use formulae in maths and science.

The perimeter of a rectangle = **2a + 2b** where the sides of the rectangle are **a** and **b**.

a = 4cm

b = 7cm.

7cm

4cm

Perimeter = _____

Equations and Variables
Find pairs of numbers that satisfy a simple equation with two unknowns.

The sum of 2 numbers is 8,
find 3 pairs of **a** and **b**.

_____

a – b = 12,
find 3 possible solutions for a and b.

_____

cd = 24,
find 3 different pairs of numbers for c and d.

_____

Enumerate possibilities of combinations of two variables.

The difference between 2 positive integers less than seven is 4. Find all the possible pairs of positive integers.

_____

Find all the possible solutions when **e + f = 24** and **e** and **f** are both greater than 10.

_____

Find all the possible solutions when **4g = h** and **h** is less than 9.

_____

Algebra Mat: Expected Year 6 Answers

Sequences

Generate and describe linear number sequences.

Generate a linear sequence that starts at 3 and adds 4 each time.

3, 7, 11, 15, 19,...

Describe this linear sequence:
4, 9, 14, 19,...

Start at 4 and add 5 each time.

The 5 times table subtract 1.

Expressions

Express missing number problems algebraically.

p is 3 more than q.

Express this algebraically.

p – 3 = q or p = q + 3

Simplify a + a + a + b + b.

3a + 2b

Formulae

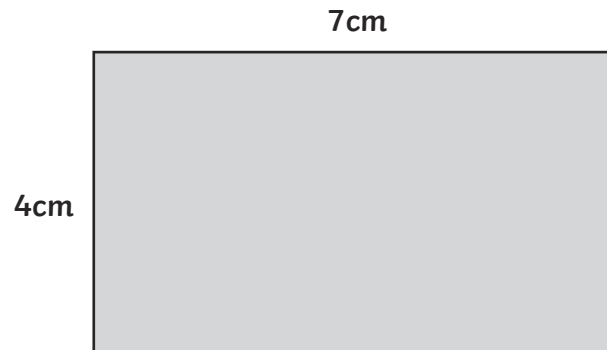In the formula **y = x + 2**, find the value of **y** when **x = 8**.

y = 8 + 2 = 10

Use formulae in maths and science.

The perimeter of a rectangle = **2a + 2b** where the sides of the rectangle are **a** and **b**.

a = 4cm

b = 7cm.

7cm

4cm

Perimeter = **2 × 4cm + 2 × 7cm = 22cm**

Equations and Variables

Find pairs of numbers that satisfy a simple equation with two unknowns.

The sum of 2 numbers is 8, find 3 pairs of **a** and **b**.

a = 2, b = 6; a = 3, b = 5; a = 4, b = 4

a – b = 12, find 3 possible solutions for a and b.

a = 14, b = 2; a = 15, b = 3, a = 16, b = 4

cd = 24, find 3 different pairs of numbers for c and d.

c = 12, d = 2; c = 8, d = 3; c = 6, d = 4

Enumerate possibilities of combinations of two variables.

The difference between 2 positive integers less than seven is 4. Find all the possible pairs of positive integers.

1 and 5; 2 and 6

Find all the possible solutions when e + f = 24 and e and f are both greater than 10.

e = 11, f = 13; e = 12, f = 12; e = 13, f = 11

Find all the possible solutions when 4g = h and h is less than 9.

g = 1, h = 4; g = 2, h = 8

Algebra Mat: Greater Depth Year 6

Sequences

Generate and describe linear number sequences by writing the equation for the nth term.

Generate a linear sequence that starts at 3 and adds 4 each time.

If the first term is 3, what is the nth term?

Expressions

Express missing number problems algebraically.

p is 3 more than twice q.

Express this algebraically.

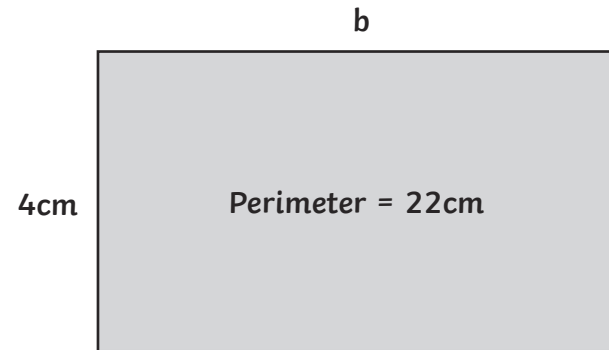Simplify a + b + a - b + a + b.

Formulae

Use formulae.

In the formula $2y = 3x + 2$, find the value of y when x = 8.

Use formulae in maths and science

The perimeter of a rectangle = **2a + 2b** where the sides of the rectangle are **a** and **b**.

Perimeter = 22cm and **a = 4cm**, what is **b**?

b

4cm | Perimeter = 22cm

Equations and Variables

Explain how to find pairs of numbers that satisfy an equation with two unknowns.

a – b = 12.

cd = 24,
find 3 different pairs of numbers for **c** and **d**.

Enumerate possibilities of combinations of two variables.

The difference between 2 positive integers less than seven is 4. Find all the possible pairs of positive integers.

Find all the possible solutions when **e + f = 24** and **e** and **f** are both greater than 10.

Find all the possible solutions when **4g = h** and **h** is less than 9.

Algebra Mat: Greater Depth Year 6

Sequences

Generate and describe linear number sequences by writing the equation for the nth term.

Generate a linear sequence that starts at 3 and adds 4 each time.

3, 7, 11, 15, 19,...

If the first term is 3, what is the nth term?

4n - 1

Expressions

Express missing number problems algebraically.

p is 3 more than twice q.

Express this algebraically.

$\dfrac{(p-3)}{2}$ **= q or p = 2q + 3**

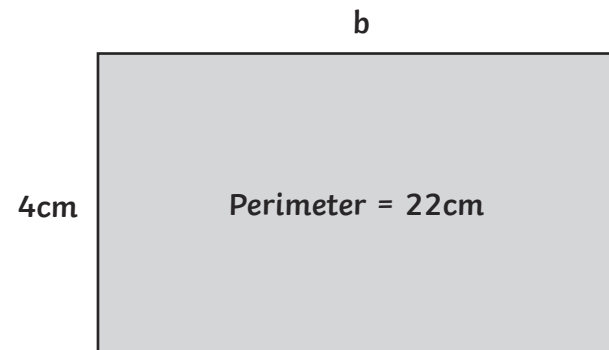Simplify a + b + a - b + a + b.

3a + b

Formulae

Use formulae.

In the formula 2y = 3x + 2, find the value of y when x = 8.

2y = 3 × 8 + 2 = 24 + 2 = 26, so y = 13

Use formulae in maths and science

The perimeter of a rectangle = **2a + 2b** where the sides of the rectangle are **a** and **b**.

Perimeter = 22cm and **a = 4cm**, what is **b**?

b

4cm   Perimeter = 22cm

22cm = 2 × 4cm + 2b

2b = 22cm - 2 × 4cm

2b = 22cm - 8cm = 14cm

b = 7cm

Equations and Variables

Explain how to find pairs of numbers that satisfy an equation with two unknowns.

a – b = 12.

**All pairs of numbers with a difference of 12, so add 12 to b, e.g.
a = 14, b = 2; a = 15, b = 3, a = 16, b = 4**

cd = 24,
find 3 different pairs of numbers for **c** and **d**.

c and d are the factor pairs of 24.

c = 12, d = 2; c = 8, d = 3; c = 6, d = 4

Enumerate possibilities of combinations of two variables.

The difference between 2 positive integers less than seven is 4. Find all the possible pairs of positive integers.

1 and 5; 2 and 6

Find all the possible solutions when e + f = 24 and e and f are both greater than 10.

e = 11, f = 13; e = 12, f = 12; e = 13, f = 11

Find all the possible solutions when 4g = h and h is less than 9.

g = 1, h = 4; g = 2, h = 8