

Name:

Developing

Algebra 2

Additional Tasks





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## Quiz 1



1) 10% of \$64

2)  $1 - \frac{2}{7}$ 3)  $0.4 \times 5$ 

4) Write 51% as a decimal.

5) Write  $\frac{1}{4}$  as a percentage.

6) Write 0.3 as a fraction.

7)  $2.4 + 7.85$ 8)  $4 \div 100$ 9)  $\frac{5}{6}$  of £18

\_\_\_ out of 9



## Example 1



Expand and simplify  $(2x + 5)(x - 3)$ .

$$\begin{aligned}(2x + 5)(x - 3) \\ = 2x^2 - 6x + 5x - 15 \\ = \underline{2x^2 - x - 15}\end{aligned}$$

Remember the acronym FOIL

First  $2x^2$

Outside  $-6x$

Inside  $+5x$

Last  $-15$





## Quiz 2



1) Expand  
 $4(x - 2)$

2) Expand  
 $x(x + 3)$

3) Expand  
 $2y(y - 4 + x)$

4) Solve  
 $4x = 20$

5) Solve  
 $4x = 18$

6) Solve  
 $4x = 1$

7) Simplify  
 $2x + 7y + 5x - 3y$

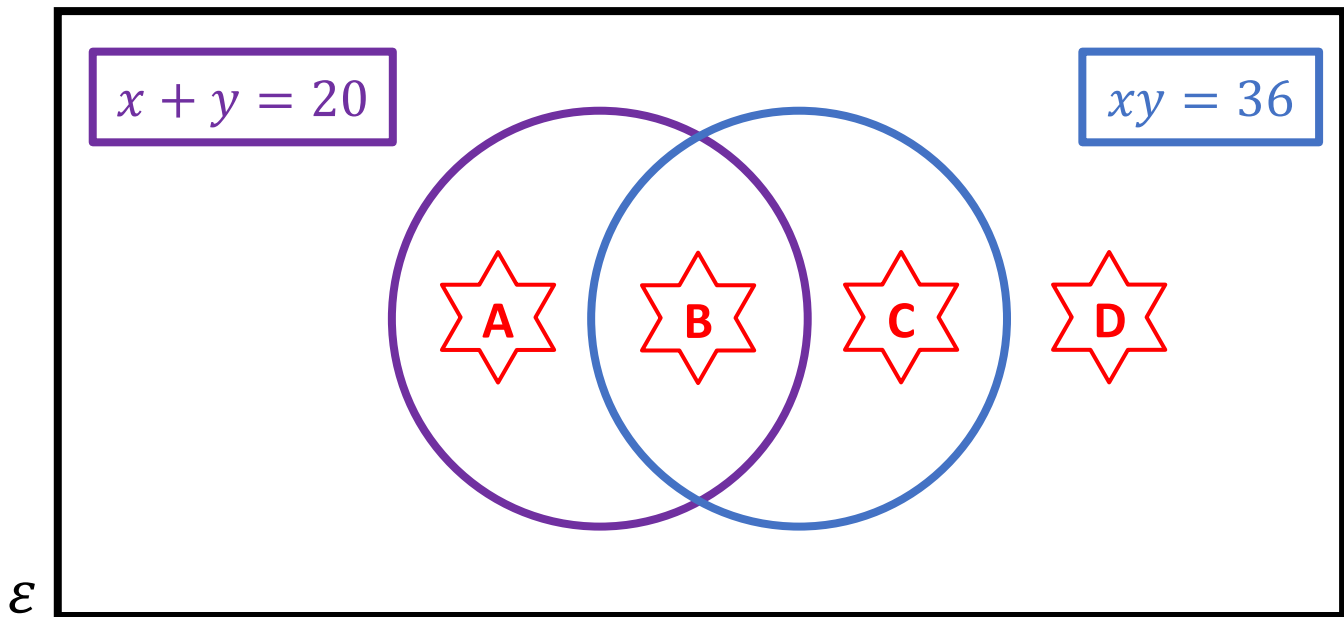
8) Substitute  
 $x = 2$  into  
 $6x - 3.$

9) Factorise  
 $8x + 14$

\_\_\_ out of 9



Venn Diagram Challenge 1



Think of values for  $x$  and  $y$  that would fit into each region. If you think a region is impossible to fill, explain why!











## Example 2



Solve the equation  $5x + 3 = 3x - 27$ .

BALANCING METHOD

$$5x + 3 = 3x - 27$$

$$5x = 3x - 30 \quad [\text{subtract } 3]$$

$$2x = -30 \quad [\text{Subtract } 3x]$$

$$x = -15 \quad [\text{Divide by } 2]$$



## Exercise 2



Solve the equation  $7x + 5 = 4x + 41$ .

A large grid of blue lines on a white background, enclosed in a dashed black border, intended for students to show their work.

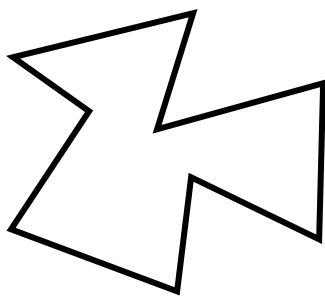
\_\_\_ out of 3



## Quiz 3



1) Name this shape.



2)  $3^2 + 4^3$

3) How many days are in November?

4) Was 1826 a leap year?

5) What is the total internal angles of any triangle?

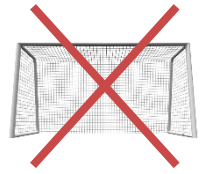
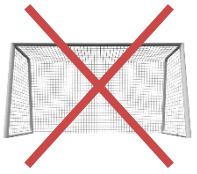
6) Amy scored 12 out of 25 in a test. What was Amy's percentage in the test?

7) The mean of 4, 2, 1, 9, 4

8) The mode of 4, 2, 1, 9, 4

9) The median of 4, 2, 1, 9, 4

\_\_\_ out of 9



The diagram shows a rectangle.

The lengths are all in centimetres.

What can you find from this information?

$x + 1$

6



$x - 1$



## Example 3



Solve the equation  $\frac{x}{2} = 4x - 7$ .

$$\frac{x}{2} = 4x - 7$$

$$x = 2(4x - 7) \quad [\text{Multiply by 2}]$$

$$x = 8x - 14 \quad [\text{Expand}]$$

$$8x - 14 = x \quad [\text{Swap sides}]$$

$$7x = 14 \quad [\text{Subtract } x, \text{ add } 14]$$

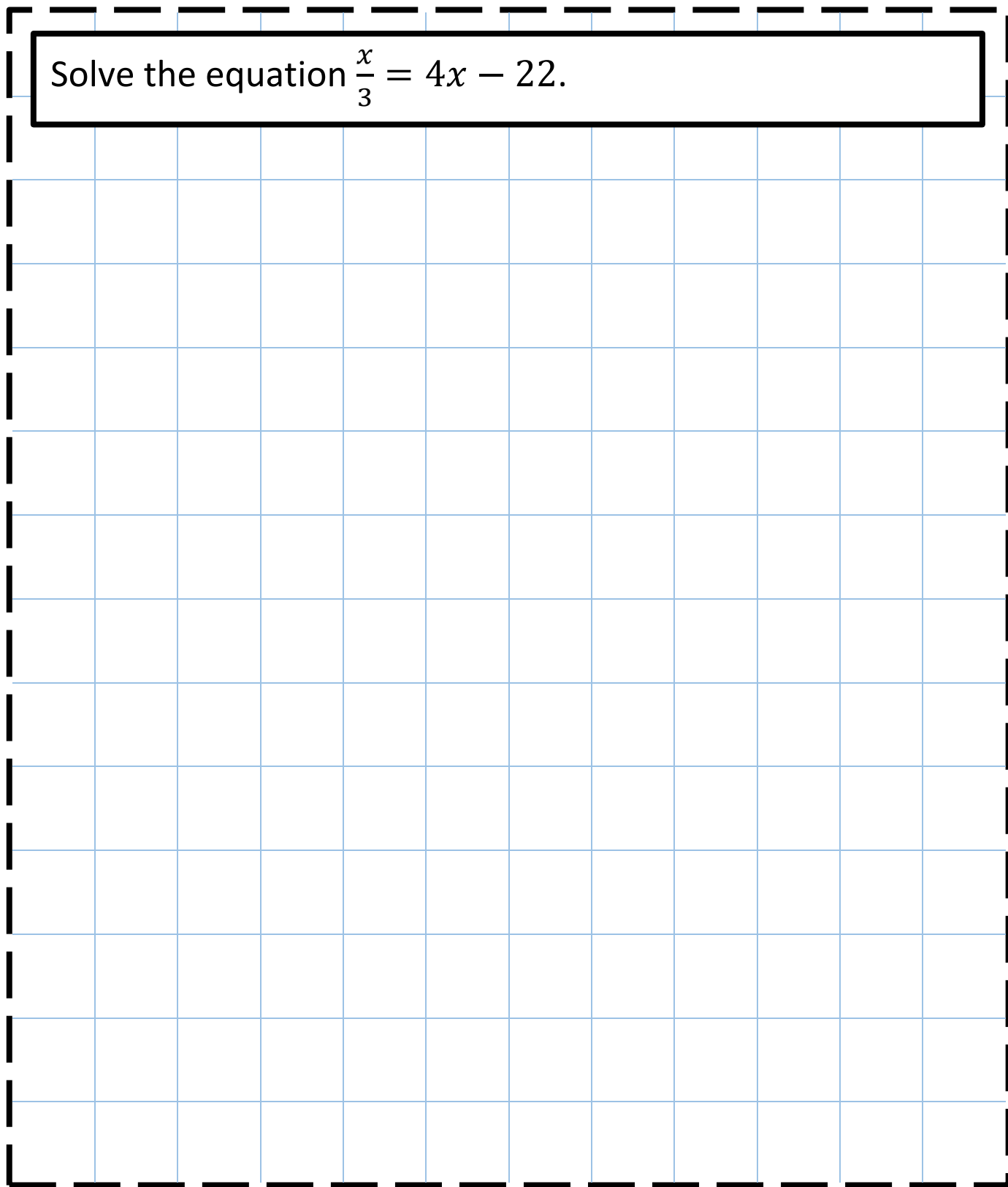
$$x = 2 \quad [\text{Divide by 7}]$$



## Exercise 3



Solve the equation  $\frac{x}{3} = 4x - 22$ .



\_\_\_ out of 4



## Quiz 4



1)  $\sqrt{16}$

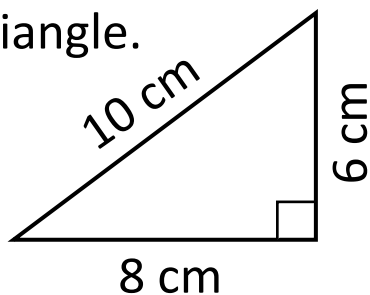
2) Circle the prime numbers.

16    17    18

19    20    21

3) Write an algebraic expression for 'three more than  $x$ '.

4) Calculate the area of the triangle.



5)  $\frac{3}{11} + \frac{5}{11}$

6) Sketch a trapezium.

7) Simplify  
 $2^5 \times 2^7$

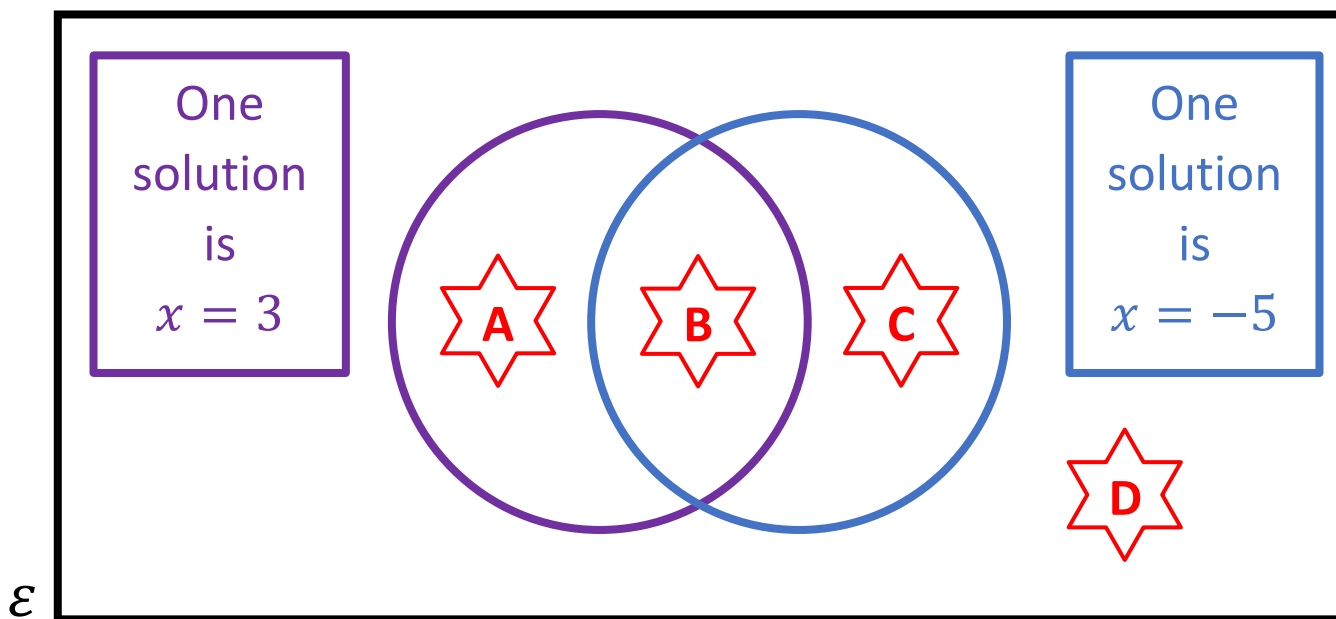
8) Simplify  
 $3^{15} \div 3^5$

9) Simplify  $5^0$

\_\_\_ out of 9



Venn Diagram Challenge 2



Think of a quadratic equation equal to zero that could fit into each region. If you think a region is impossible to fill, explain why!











## Example 4



What is the  $n$ th term of the sequence 7, 10, 13, 16, ...?

4, 7, 10, 13, 16, ...  
-3, +3, +3, +3

$n$ th term:  $3n + 4$





## Quiz 5



Factorise the following algebraic expressions.

1)  $6x + 30$

2)  $14 - 7y$

3)  $x^2 + 5x$

4)  $4y - 2y^2$

5)  $12xy - 8x^2$

6)  $x^2 + 10x + 16$

7)  $x^2 - 10x + 16$

8)  $x^2 + 6x - 16$

9)  $x^2 - 6x - 16$

\_\_\_ out of 9



## Changing the Subject



1) Make  $a$  the subject of the formula.

2) Make  $b$  the subject of the formula.

$$d = \frac{2c + b}{a}$$

3) Make  $c$  the subject of the formula.

4) If  $a = 5$ ,  $b = 4$ ,  $c = 3$ , what is the value of  $d$ ?

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# Evaluating the Workbook



# Notes