

Understand the meaning of equivalence



1 a) Complete the table.

Expression	Value when $y = 5$	Value when $y = 9$
$7y$		
$3y$		
$4y + 3y$		
$10 - 3y$		
$7y - 4y$		
$y + y + y$		
$3y + 4$		
$4y - y$		

b) Look at each column.
Which expressions give the same answers?

c) Why do you think this is the case?

2 Tick the expressions that are equal to $8p$.

$p + 7p$

$\frac{p}{8}$

$8p - p - 7p$

$11p - 3$

$4p \times 2$

$11p - 3p$

$2p \times 4p$

$4 \times 2p$

$3p - 11p$

Check your answers by substituting several values of p .

3 a) Each of these expressions should be equal to $10m$.
Complete the expressions.

$3m + \square$	$5m + \square$	$5m \times \square$
$\square + 6m$	$10m$	$3m + 3m + \square$
$50m \div \square$	$\square - 6m$	$12m - \square$

b) Write five expressions that are equivalent to $24ab$.
One has been done for you.

$6a \times 4b$

- 4 Work out the expressions below for several values of g .

$$4g + 20 \quad 4(g + 5) \quad 4g + 5$$

What do you notice? Will this always be the case?

- 5 a) Circle the two expressions that are equivalent to $3x + 6$

$$6 + 3x \quad 3(x + 2) \quad 3(x + 6)$$

- b) Circle the two expressions that are equivalent to $8y - 20$

$$20 - 8y \quad 4y + 4y - 20 \quad 2(4y - 10)$$

How did you work this out? Talk about it with a partner.



- 6 Are these statements true or false? Tick your answer.

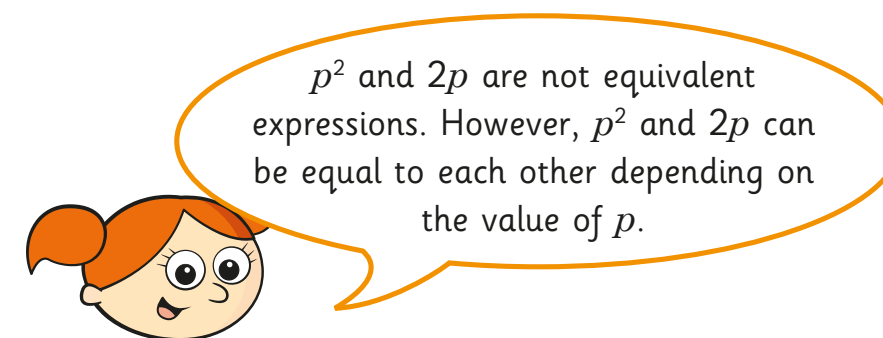
	True	False
$2x + 3x$ is equivalent to $5x$	☐	☐
$2x \times 3x$ is equivalent to $5x$	☐	☐
$7x - 2x$ is equivalent to $5x$	☐	☐
$7x - 2x$ is equivalent to 5	☐	☐

Compare answers with a partner.



- 7 Are the expressions $3a$ and a^3 equivalent? _____
Explain your answer.

- 8 Alex is looking at expressions.



Alex is correct. What does the value of p need to be to make the expressions equal?

- 9 Tick the pairs of expressions that are equivalent.

$$5ab \text{ and } 5ba$$

$$5(a + b) \text{ and } 5a + b$$

$$3a + 2b \text{ and } 5ab$$

$$\frac{m}{2} \text{ and } \frac{2}{m}$$

Explain your reasoning.

Are any of these expressions equal to each other for particular values?

