Introduction to two-step equations

1 Form and solve an equation to find the unknown value in each bar model.

a)

52	
y	37

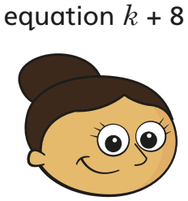
$y =$ 15

b)

104			
m	m	m	m

$m =$ 26

2 Dora is solving the equation $k + 8 = 3$



8 – 3 = 5
so $k = 5$

What mistake has Dora made?

What is the correct value of k?

-5

3 Solve the equations.

a) $d + 12 = 20$

$d =$ 8

b) $10 + x = 4$

$x =$ -6

c) $3m = -24$

$m =$ -8

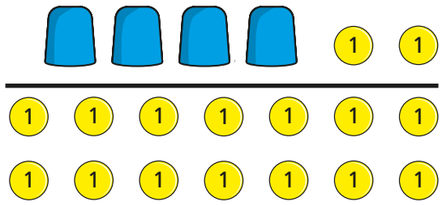
d) $17 = 5n$

$n =$ $3 \cdot 4$

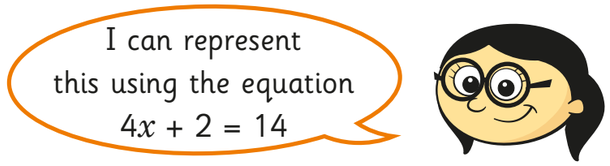
4 4 cups each contain the same number of counters.

There are 2 counters left over.

There are 14 counters altogether.



a)



Is Annie correct? Yes

Talk to a partner about your reasons.

b) Solve the equation $4x + 2 = 14$

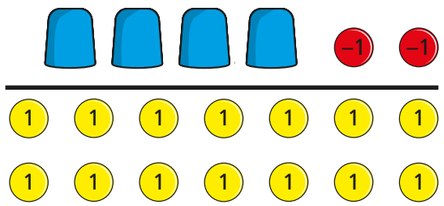
Show each step of your workings.

$x=3$

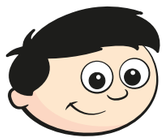
c) How many counters are in each cup?

3

5 Dexter represents the equation $4x - 2 = 14$ using cups and counters.



a)



I can use zero pairs to help me solve this.

Talk to a partner about why Dexter thinks this.

b) Solve the equation $4x - 2 = 14$

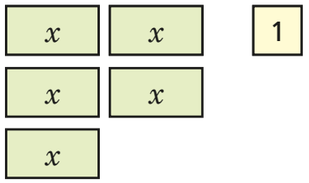
Show each step of your workings.

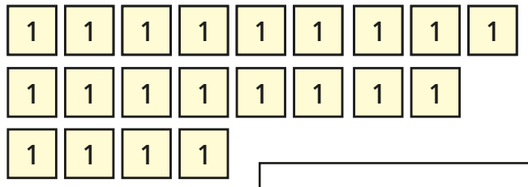
$x=4$

c) How many counters are in each cup?

4

6 Huan is using algebra tiles to solve the equation $2x + 1 = 9$





$2x + 1 = 9$

$-1 \quad -1$

$2x = 8$

$\div 2 \quad \div 2$

$x = 4$

Use algebra tiles to solve the equations.

a) $3x + 1 = 10$

$x =$ 3

b) $5x + 2 = 7$

$x =$ 1

c) $3 + 2x = 15$

$x =$ 6

d) $2y - 3 = 5$

$y =$ 4

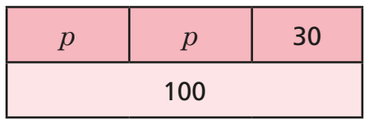
e) $3n + 7 = 1$

$n =$ −2

f) $3k - 5 = 10$

$k =$ 5

5 Esther draws a bar model to solve the equation $2p + 30 = 100$



Solve Esther's equation. $p =$ 35

6 Draw a bar model to illustrate $75 + 3y = 102$

What is the value of y? 9

7 Scott and Nijah are solving the equation $3k - 2 = 11$

Scott's workings

$3k - 2 = 11$

$3k = 11 - 2$

$3k = 9$

$k = 3$

Nijah's workings

$3k - 2 = 11$

$3k = 11 + 2$

$3k = 13$

a) What mistake has Scott made?

He has subtracted 2 from 11 when he should have added it.

b) Nijah says you cannot solve the equation, as 13 is not in the 3 times-table.

Is Nijah correct? No

Explain your answer.

You can write it as a fraction $(\frac{13}{3})$

8 Solve the equations.

a) $8w + 2 = 19$

$w =$ $\frac{17}{8}$

b) $5g - 2 = 11$

$g =$ $\frac{13}{5}$

c) $5p + 9 = 5$

$p =$ $-\frac{4}{5}$

d) $6g - 10 = -3$

$g =$ $\frac{7}{6}$