Add directed numbers

1 $\;-1 = -1$ and $\;1 = 1$

What is the total value of each set of counters?

a) -1 1

b) -1 1 -1 -1 1 -1 1

c) 1 1 -1 1 -1 1 -1

d) -1 -1 -1 -1 -1 -1 -1
1 1 1 1 1 1 1

e) 1 -1 -1 -1 1
1 -1 1 -1 1
-1 1 -1 -1 -1
1 1 -1 1

2 Complete the calculations using counters.

a) 1 1 1
-1 -1 -1 -1 -1

$3 + -5 = \boxed{}$

b) 1 1 1 1 1
-1 -1 -1

$\boxed{} + -3 = \boxed{}$

c) 1 1
-1 -1 -1 -1 -1 -1 -1

$2 + \boxed{} = \boxed{}$

d) 1 1 1 1 1
-1 -1

$-2 + \boxed{} = \boxed{}$

3 Complete the calculations.
Use counters to help you.

a) $2 + -7 = \boxed{}$ **c)** $-2 + 7 = \boxed{}$

b) $-8 + 3 = \boxed{}$ **d)** $-4 + -3 = \boxed{}$

4 Use the counters to help you work out $-2 + -6$

-1 -1 $+$ -1 -1 -1 -1 -1 -1 $= \boxed{}$

5 Complete the calculations.

a) $8 + -3 =$ ☐

$-8 + -3 =$ ☐

$3 + -8 =$ ☐

$-3 + -8 =$ ☐

b) $6 = 7 +$ ☐

$-6 = 7 +$ ☐

$6 = -7 +$ ☐

$-6 = -7 +$ ☐

6 Complete the part-whole models.

a)

b)
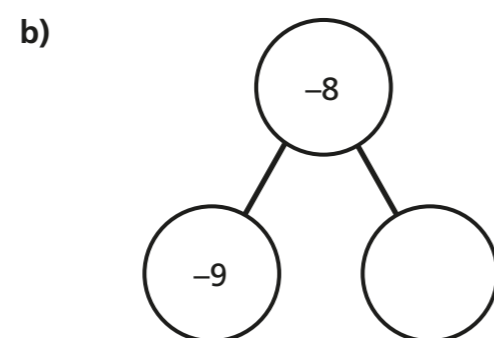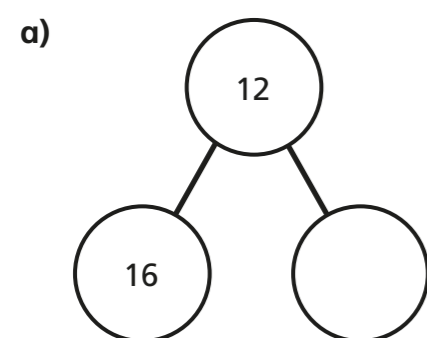
7 Work out the missing numbers in these statements.

a) $4 + -9 = 2 +$ ☐

b) ☐ $- 1 = -4 + -9$

c) $9 + -4 = -7 +$ ☐

d) $-7 +$ ☐ $= -9 + -4$

8 **a)** Complete the calculation.

$372 + -408 =$ ☐

Show your workings.

Compare your method with a partner's.

b) Work out the calculations.

$20 + -35 =$ ☐

$-10 + -32 =$ ☐

☐ $= 25 + -30$

$291 + -527 =$ ☐

$-291 + -527 =$ ☐

9 In a quiz, you receive 7 points for a correct answer and –4 points for an incorrect answer.

You receive 0 points if you do not answer the question.

There are 20 questions in total.

Is it possible to get a score of –11 in this quiz? _____

Explain your answer.

_____

_____

10 Simplify the expressions by collecting like terms.

a) $6m + -10m \equiv$ ☐

b) $-6m + -10m \equiv$ ☐

c) $-6m + 10m \equiv$ ☐

d) $-6m + -10m + 12m \equiv$ ☐

e) $6m + -10m + -17m \equiv$ ☐

f) $-6m + 10m + -24m \equiv$ ☐