

# Homework/Extension

## Step 4: Negative Numbers

### National Curriculum Objectives:

Mathematics Year 6: (6N5) [Use negative numbers in context, and calculate intervals across zero](#)

Mathematics Year 6: (6N6) [Solve number and practical problems that involve 6N2 - 6N5](#)

### Differentiation:

Questions 1, 4 and 7 (Varied Fluency)

**Developing** Place the given calculations in the correct column to support calculating intervals across zero. Intervals of up to and including ten.

**Expected** Place the given calculations in the correct column to support calculating intervals across zero. Intervals of any number.

**Greater Depth** Place the given calculations in the correct column to support calculating intervals across zero. Intervals of any number, including some use of halves as decimal numbers.

Questions 2, 5 and 8 (Varied Fluency)

**Developing** Find the missing amounts of money to support calculating intervals across zero. Intervals of up to and including ten.

**Expected** Find the missing amounts of money to support calculating intervals across zero. Intervals of any number, including some use of halves as decimal numbers in context.

**Greater Depth** Find the missing amounts of money to support calculating intervals across zero. Intervals of any number, including more use of halves as decimal numbers in context.

Questions 3, 6 and 9 (Reasoning and Problem Solving)

**Developing** Find combinations to prove whether a statement is correct using intervals across zero. Intervals of up to and including ten.

**Expected** Find combinations to prove whether a statement is correct using intervals across zero. Intervals of any number.

**Greater Depth** Find combinations to prove whether a statement is correct using intervals across zero. Intervals of any number, including some use of halves as decimal numbers in context.

More [Year 6 Place Value](#) resources.

Did you like this resource? Don't forget to [review](#) it on our website.

# Negative Numbers

1. Work out the answers to the calculations below and place them in the correct columns.

$$-9 + 8$$

$$-10 + 9$$

$$0 - -9$$

$$3 + -10$$

$$-7 + -2$$

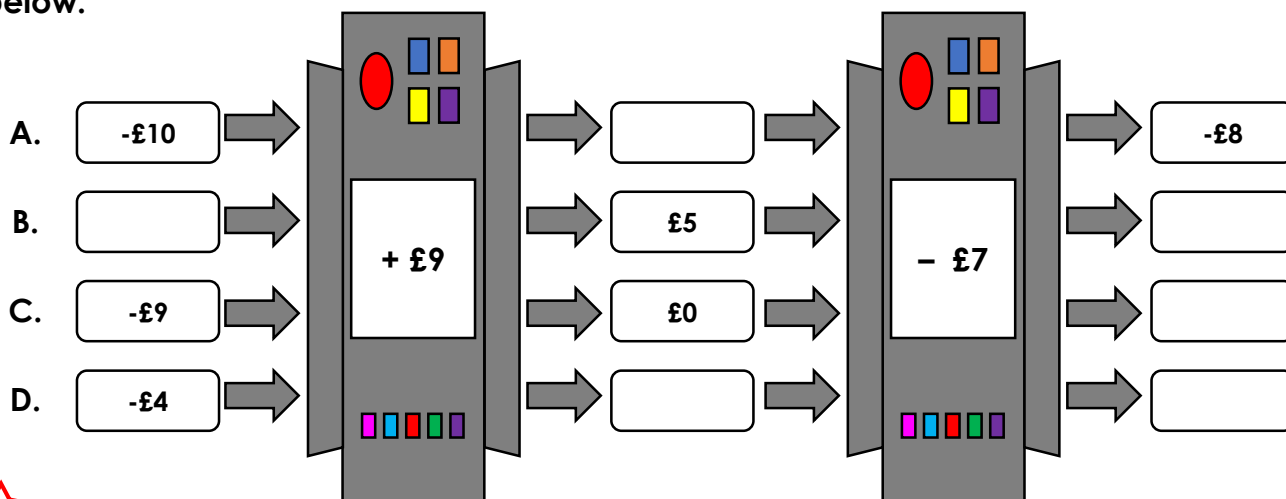
$$-3 + -4$$

-5 or below	Between 0 and -5	0 or above



VF  
HW/Ext

2. A bank has installed some function machines. Find the missing amounts of money below.



VF  
HW/Ext

3. Dr Blake is trying to get a mixture to reach a temperature between  $5^{\circ}\text{C}$  and  $9^{\circ}\text{C}$ .

She says,



My mixture is currently at  $-9^{\circ}\text{C}$ .  
I can reach a desired temperature by adding 2 chemicals to it.

Chemical A	+ $6^{\circ}\text{C}$
Chemical B	+ $8^{\circ}\text{C}$
Chemical C	+ $5^{\circ}\text{C}$
Chemical D	+ $7^{\circ}\text{C}$
Chemical E	+ $10^{\circ}\text{C}$

Is she correct?

Find combinations to prove your answer.



RPS  
HW/Ext

# Negative Numbers

4. Work out the answers to the calculations below and place them in the correct columns.

$$-3 + 9$$

$$-10 - 16$$

$$7 - -9$$

$$3 + -12$$

$$-17 + -2$$

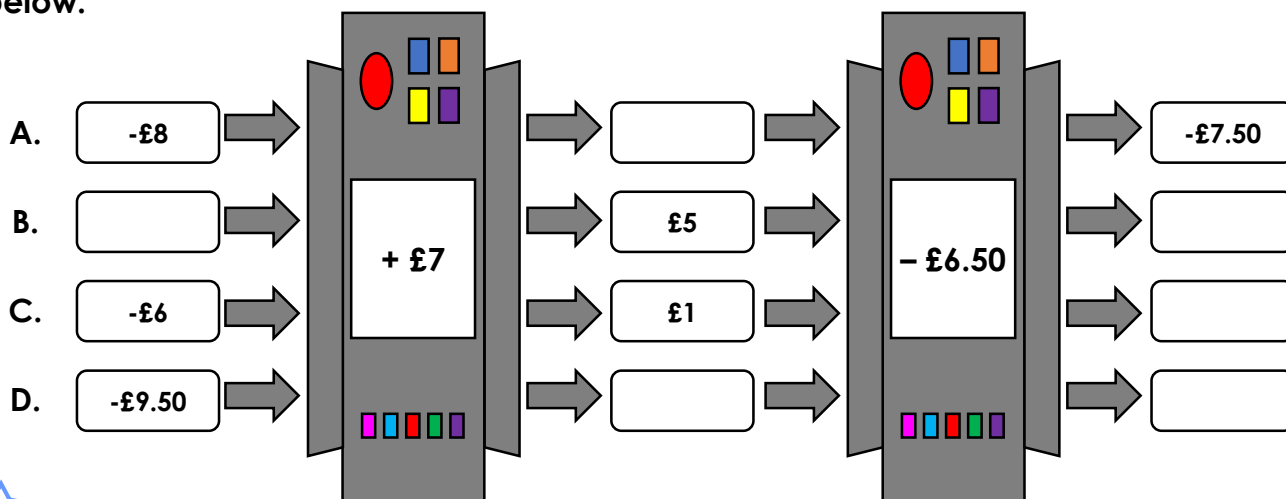
$$-9 + -4$$

-10 or below	Between 0 and -10	0 or above



VF  
HW/Ext

5. A bank has installed some function machines. Find the missing amounts of money below.



VF  
HW/Ext

6. Dr Banner is trying to get a mixture to reach a temperature between  $5^{\circ}\text{C}$  and  $12^{\circ}\text{C}$ .

He says,



My mixture is currently at  $-17^{\circ}\text{C}$ .  
I can reach a desired temperature by adding 3 chemicals to it.

Chemical A	$+ 2^{\circ}\text{C}$
Chemical B	$+ 11^{\circ}\text{C}$
Chemical C	$+ 7^{\circ}\text{C}$
Chemical D	$+ 4^{\circ}\text{C}$
Chemical E	$+ 13^{\circ}\text{C}$
Chemical F	$+ 9^{\circ}\text{C}$

Is he correct?

Find combinations to prove your answer.



RPS  
HW/Ext

# Negative Numbers

7. Work out the answers to the calculations below and place them in the correct columns.

$$-4 + 12$$

$$-9.5 - 12$$

$$12.5 - -7$$

$$4.5 + -13$$

$$-13.5 + -2.5$$

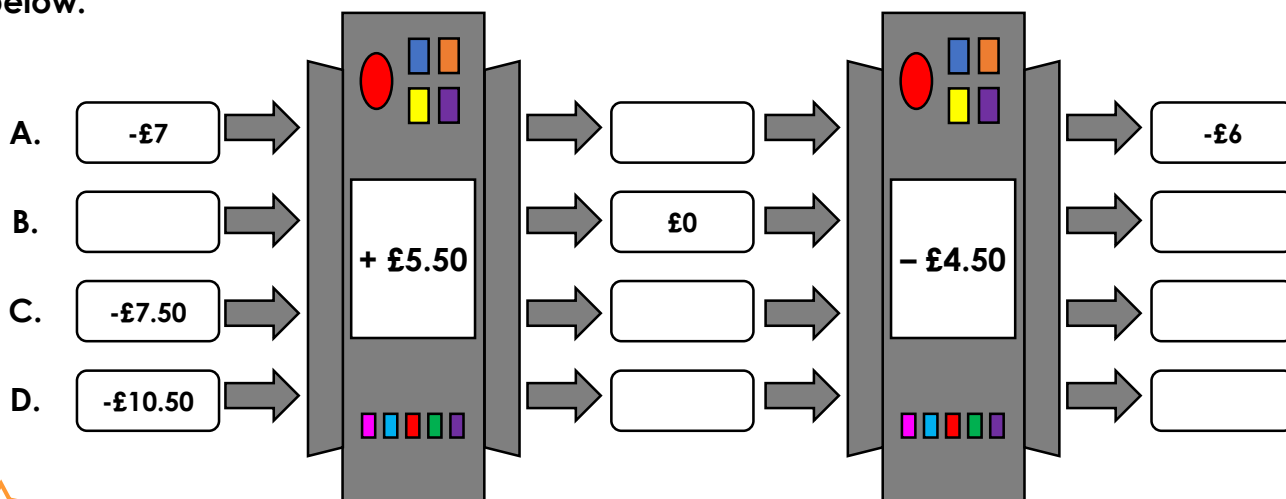
$$-4 + -5$$

-10 or below	Between 0 and -10	0 or above



VF  
HW/Ext

8. A bank has installed some function machines. Find the missing amounts of money below.



VF  
HW/Ext

9. Dr Parker is trying to get a mixture to reach a temperature between  $7^{\circ}\text{C}$  and  $13.5^{\circ}\text{C}$ .

She says,



My mixture is currently at  $-19^{\circ}\text{C}$ . I can reach a desired temperature by adding 4 chemicals to it.

Chemical A	+ $3.5^{\circ}\text{C}$
Chemical B	+ $11.5^{\circ}\text{C}$
Chemical C	+ $6.5^{\circ}\text{C}$
Chemical D	+ $13^{\circ}\text{C}$
Chemical E	+ $7.5^{\circ}\text{C}$
Chemical F	+ $9^{\circ}\text{C}$

Is she correct?

Find combinations to prove your answer.



RPS  
HW/Ext

# Homework/Extension

## Negative Numbers

### Developing

1. -5 or below:  $3 + -10 = -7$ ;  $-7 + -2 = -9$ ;  $-3 + -4 = -7$

Between 0 and -5:  $-9 + 8 = -1$ ;  $-10 + 9 = -1$

0 or above:  $0 - -9 = 9$

2. A. -£1

B. -£4, -£2

C. - £7

D. £5, -£2

3. Various answers, for example: Dr Blake is correct.

He could add chemicals D and E to his mixture which would increase the temperature to  $8^{\circ}\text{C}$  as  $-9 + 7 + 10 = 8$ .

### Expected

4. -10 or below:  $-10 - 16 = -26$ ;  $-17 + -2 = -19$ ;  $-9 + -4 = -13$

Between 0 and -10:  $3 + -12 = -9$

0 or above:  $-3 + 9 = 6$ ;  $7 - -9 = 16$

5. A. -£1

B. -£2, -£1.50

C. £1, £5.50

D. -£2.50, -£9

6. Various answers, for example: Dr Banner is correct.

He could add chemicals A, E and F to his mixture which would increase the temperature to  $7^{\circ}\text{C}$  as  $-17 + 2 + 13 + 9 = 7$ .

### Greater Depth

7. -10 or below:  $-9.5 - 12 = -21.5$ ;  $-13.5 + -2.5 = -16$

Between 0 and -10:  $4.5 + -13 = -8.5$ ;  $-4 + -5 = -9$

0 or above:  $-4 + 12 = 8$ ;  $12.5 - -7 = 19.5$

8. A. -£1.50

B. -£5.50, -£4.50

C. -£2, - £6.50

D. -£5, -£9.50

9. Various answers, for example: Dr Parker is correct.

He could add chemicals A, B, C and F to his mixture which would increase the temperature to  $11.5^{\circ}\text{C}$  as  $-19 + 3.5 + 11.5 + 6.5 + 9 = 11.5$ .