



Working with positive and negative numbers

This part of the task gives you the chance to try out your skills and check your progress with some typical questions from the National Test at Level 2. It also contains the answers to all the activities in Part 1 and Part 3.

Try it out

Now try out your skills by doing the following two tasks.



Task 1

You are working as a supervisor in a warehouse that stores foods, including chilled and frozen items.

The key temperature guidelines for storing different types of food safely are:

- fresh produce should be kept at temperatures of **less than 7 °C**
- chilled produce should be kept at a temperature of **less than 3 °C**
- frozen food should be kept at less than **-15 °C**.

When a delivery arrives, a member of staff checks that items have been kept at the right temperature, according to the type of food in the delivery. He checks the temperature gauge in the delivery vehicle and compares the temperature on the gauge with the temperature required for that type of food.

They record this information on a Vehicle Delivery Temperature Check sheet, along with other details about the delivery.



Build your skills: Positive and negative numbers – Part 3

Look at the following Vehicle Delivery Temperature Check sheet:

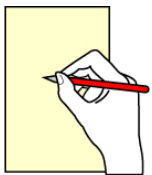
Vehicle Delivery Temperature Check					Date: 5 Sep 2007	
Time	Vehicle	Delivery type	Maximum temp.	Vehicle gauge temp.	Checked by	Action
08:37	DV312	Fresh	7 °C	6 °C	JB	
10:35	DN210	Frozen	-15 °C	-16 °C	AH	
11:42	AL139	Chilled	3 °C	5 °C	JB	
12:37	BV403	Chilled	3 °C	4 °C	JB	
14:46	A831	Frozen	-15 °C	-14 °C	AH	
17:22	L433	Fresh	7 °C	6 °C	AH	
18:48	BX409	Chilled	3 °C	1 °C	DL	
22:39	DV947	Frozen	-15 °C	-17 °C	DL	

As the supervisor, you need to check if the delivery meets the requirements and can be accepted. If the temperature on the vehicle's gauge is higher than the maximum temperature for that food type, the delivery must be rejected.

Look at columns 4 and 5 of the above Vehicle Delivery Temperature Check sheet and fill in the last column to show whether each delivery is 'OK' or 'Rejected'.



Build your skills: Positive and negative numbers – Part 3



Task 2

Work out the balance for each line of the bank statement below. If the balance is in debit, i.e. a negative amount, write this using a minus sign before the amount:

e.g. -£10 (minus £10)

Date	Payment type	Details	Paid out (£)	Paid in (£)	Balance (£)
4 Sep		Balance brought forward			70.00
4 Sep	Cash withdrawal		40.00		
11 Sep	Bank giro credit			120.00	
16 Sep	Direct debit		35.00		
16 Sep	Direct debit		105.00		
17 Sep	Debit card		40.00		
24 Sep	Deposit			20.00	
29 Sep	Counter transaction		50.00		
30 Sep	Bank giro credit			40.00	



Build your skills: Positive and negative numbers – Part 3

Questions to check on your progress

These questions are taken from the progress checks – confidence-building tests on the Learner Route.

Progress check C, Q1

Here are the temperatures for some places in the UK on a day in January.

When arranged in order of temperature from coldest to hottest the places are

Place	Temperature in degrees Celsius ($^{\circ}\text{C}$)
Cardiff	0
London	-1
Inverness	-8
Birmingham	-6
Portsmouth	3

- A. Cardiff, London, Portsmouth, Birmingham, Inverness
- B. London, Cardiff, Portsmouth, Inverness, Birmingham
- C. Cardiff, Inverness, Birmingham, London, Portsmouth
- D. Inverness, Birmingham, London, Cardiff, Portsmouth

Progress check C, Q2

Here are the temperatures for some places in the UK on a day in January.

On Monday, the temperature in Inverness was -8°C . On Tuesday the temperature in Inverness is 3°C higher.

What is the new temperature in Inverness on Tuesday?

Place	Temperature in degrees Celsius ($^{\circ}\text{C}$)
Cardiff	0
London	-1
Inverness	-8
Birmingham	-6
Portsmouth	3

- A. -11°C
- B. 11°C
- C. 5°C
- D. -5°C



Build your skills: Positive and negative numbers – Part 3

Progress check A, Q1

This table shows the temperatures for one day in January.

Which city had the lowest temperature?

City	Max°C	Min°C
Athens	12	5
London	7	0
Moscow	-18	-23
New York	1	-6
Oslo	-10	-16
Paris	6	-2
Sydney	29	25

- A. London
- B. New York
- C. Moscow
- D. Sydney

Progress check A, Q11

This table summarises the income and costs of a performance.

Which of these calculations gives the overall **profit**?

ITEM	£
Printing costs (tickets, posters, programmes)	95
Cost of hire of hall (rehearsals and performance)	125
Cost of hiring lights and costumes	310
Refreshment sales	42
Refreshment costs	18
Ticket sales	1 840

- A. $£(95 + 125 + 310 + 18 - 1\,840 - 42)$
- B. $£(95 + 125 + 310 + 18) - (1\,840 + 42)$
- C. $£(1\,840 + 42 - 95 + 125 + 310 + 18)$
- D. $£(1\,840 + 42) - (95 + 125 + 310 + 18)$



Progress check B, Q21

A car manufacturer produces an owner's handbook for one of its cars. The section on which oil to use in the engine recommends the type of oil to use for different temperature ranges.

What is the biggest range of temperatures of an oil in the table?

Type	Temperature Range in °C
SAE 20W-50	-10 to 45
SAE 15W-40	-15 to 40
SAE 15W-50	-15 to 45
SAE 10W-30	-20 to 30

- A. 50C
- B. 55C
- C. 60C
- D. 65C



Answers to questions in Part 1



Activity 1

- 1 4 °C
- 2 -2 °C
- 3 -15 °C
- 4 -2 °C
- 5 -7 °C
- 6 -14 °C
- 7 -15
- 8 -8
- 9 -4



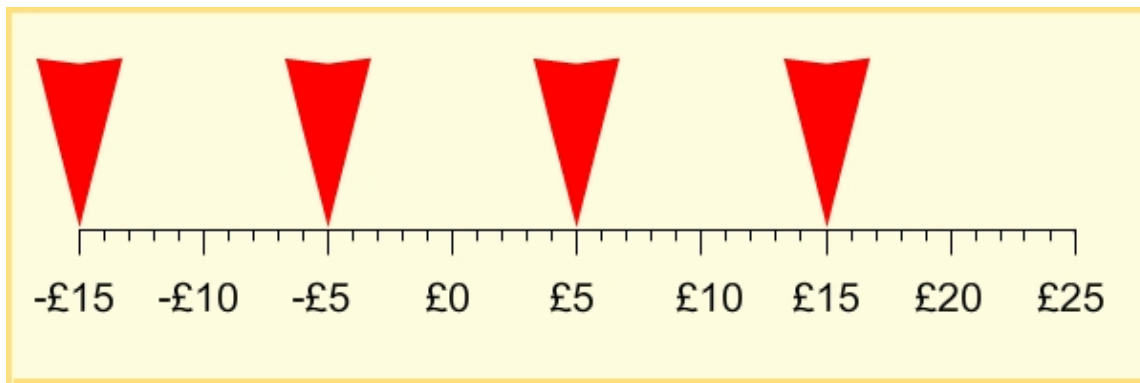
Activity 2

- 1 -1 °C
- 2 -3 °C
- 3 -6 °C
- 4 2 °C
- 5 -3 °C
- 6 -18 °C



Activity 3

- 1 -£15



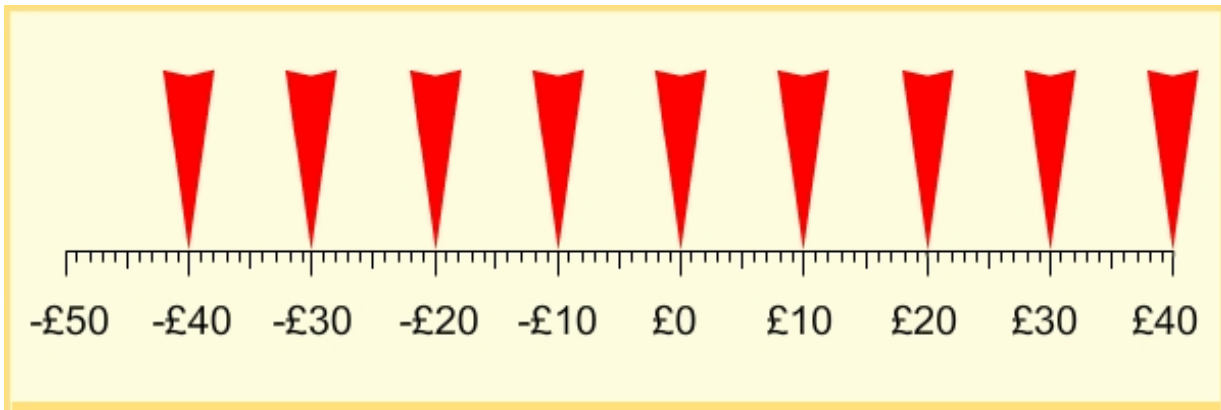


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2 -£30

3 -£70

4 £40



5 £60



Activity 4

1 It will be a negative amount: £15.50
 £24.50 +
 £40.00

So, the balance will be **-£24.50**

2 It will be a negative amount: £12.75
 £17.25 +
 £30.00

So, the balance will be **-£17.25**

3 It will be a negative amount: £ 2.30
 £87.70 +
 £90.00

So, the balance will be **-£87.70**



Activity 5

1

Expenditure	£	Income	£
Office expenses	600	Sales	12 000
Cost of materials	3 500		
Marketing costs	1 200		
Premises costs	5 200		
Total	10 500		12 000

So, the net profit is $£12\,000 - £10\,500 = £1\,500$

2

Expenditure	£	Income	£
Venue expenses	1 200	Ticket sales	2 600
Band fee	700	Drink sales	1 700
Marketing costs	1 400		
Staff costs	1 500		
Total	4 800		4 300

So, the net profit is $£4\,300 - £4\,800 = -£500$ i.e. a £500 net loss

3 The negative equity is $£180\,000 - £210\,000 = -£30\,000$

4 The negative equity is $£150\,000 - £175\,000 = -£25\,000$



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Answers to 'Try it out' tasks



Task 1

Vehicle Delivery Temperature Check					Date: 5 Sep 2007	
Time	Vehicle	Delivery type	Maximum temp.	Vehicle gauge temp.	Checked by	Action
08:37	DV312	Fresh	7 °C	6 °C	JB	OK
10:35	DN210	Frozen	-15 °C	-16 °C	AH	OK
11:42	AL139	Chilled	3 °C	5 °C	JB	Rejected
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17:22	L433	Fresh	7 °C	6 °C	AH	OK
18:48	BX409	Chilled	3 °C	1 °C	DL	OK
22:39	DV947	Frozen	-15 °C	-17 °C	DL	OK



Task 2

Date	Payment type	Details	Paid out (£)	Paid in (£)	Balance (£)
4 Sep		Balance brought forward			70.00
4 Sep	Cash withdrawal		40.00		30.00
11 Sep	Bank giro credit			120.00	150.00
16 Sep	Direct debit		35.00		115.00
16 Sep	Direct debit		105.00		10.00
17 Sep	Debit card		40.00		-30.00
24 Sep	Deposit			20.00	-10.00
29 Sep	Counter transaction		50.00		-60.00
30 Sep	Bank Giro Credit			40.00	-20.00



Answers to questions to check on your progress

- Progress check C, Q1: **D**
(Inverness, Birmingham, London, Cardiff, Portsmouth)
The numbers in order of size, **coldest first**, are: $-8, -6, -1, 0, 3$.
- Progress check C, Q2: **D**
 $-5\text{ }^{\circ}\text{C}$
The temperature has risen from $-8\text{ }^{\circ}\text{C}$ by three degrees.
- Progress check A, Q1: **C**
Moscow
The lowest temperature listed in the table is $-23\text{ }^{\circ}\text{C}$.
- Progress check A, Q11: **D**
 $\pounds(1\ 840 + 42) - (95 + 125 + 310 + 18)$
The items of income are ticket sales and refreshment sales. So, the total income is $(1840 + 42)$. The other items are all expenditure, so the total expenditure will be $(95 + 125 + 310 + 18)$.
- Progress check B, Q21: **C**
 -15 to 45
The ranges of temperatures are:

Minimum and maximum	Range
-10 to 45	55
-15 to 40	55
-15 to 45	60
-20 to 30	50