1.7 Negative Numbers: 2-hour Pack

Calculators not allowed · about 120 minutes

Name: _____ Date: ____ / ____ / _____

Answer ALL questions. Show all your working.

1 The temperature in Oslo was -3°C. It then fell by 6°C. Work out the new temperature.

(2)

2 Work out (-5 - (-2)) x 8.

(2)

3 The temperature in Helsinki was -3°C. It then fell by 6°C. Work out the new temperature.

(2)

4 Work out -13 + (-3).

(1)

5 Work out (-4 - (-2)) x 4.

(2)

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6 Work out -2 - (-8) + 2.

(2)

---

7 Calculate: -8 - 5

(1)

---

8 The temperature in Moscow was -4°C. It then fell by 7°C. Work out the new temperature.

(2)

---

9 Find the missing number: -2 x ? = -10

(2)

---

10 Write these numbers in order, largest first.
6, -7, -2, 3, -9, -11

(2)

---

11 Write these numbers in order, largest first.
-6, -11, 2, 0, 1, -5

(2)

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12 At night in Helsinki the temperature was -13°C. By midday it had risen to 12°C. Work out the rise in temperature.

(2)

---

13 Work out -8 - 4 + (-8).

(2)

---

14 Write these numbers in order, largest first.
-11, 11, 8, 6, -9, 1

(2)

---

15 Work out (8 - (-6)) x 9.

(2)

---

16 Write these numbers in order, smallest first.
-5, 10, -8, 9, -7, -9

(2)

---

17 Calculate: 6 - (-2)

(1)

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18 Work out -3 - (-1).

(1)

---

19 At night in Reykjavik the temperature was -2°C. By midday it had risen to 7°C. Work out the rise in temperature.

(2)

---

20 Work out 13 - (-12) + (-3).

(2)

---

21 Write these numbers in order, smallest first.
0, 11, 5, 2, 12, -3

(2)

---

22 Find the missing number: 10 + ? = -3

(2)

---

23 Write these numbers in order, largest first.
7, -8, -11, 12, -9, 0

(2)

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24 Find the missing number: 10 + ? = 15

(2)

---

25 Write these numbers in order, largest first.
-2, -11, -6, -10, -9, 2

(2)

---

26 Calculate: -4 x 3

(1)

---

27 Work out (-9 - (-5)) x 5.

(2)

---

28 Work out -11 - 11 + (-7).

(2)

---

29 Write these numbers in order, smallest first.
8, -11, -10, -1, 5, -5

(2)

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30 Work out
(a) (-12) x 8
(b) 22 ÷ 2

(2)

---

31 Work out 14 + (-1).

(1)

---

32 Work out -13 - 3 + 3.

(2)

---

33 The temperature in Moscow was -13°C. It then fell by 6°C. Work out the new temperature.

(2)

---

34 Work out
(a) (-11) x (-5)
(b) 25 ÷ 5

(2)

---

35 Calculate: -18 ÷ 6

(1)

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36 The temperature in Calgary was -11°C. It then fell by 4°C. Work out the new temperature.

(2)

---

37 Find the missing number: -5 - ? = -16

(2)

---

38 Work out 9 + (-10).

(1)

---

39 At night in Reykjavik the temperature was -2°C. By midday it had risen to 8°C. Work out the rise in temperature.

(2)

---

40 Work out 6 - 11.

(1)

---

41 Work out
(a) (-12) x 7
(b) 54 ÷ 9

(2)

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42 Write these numbers in order, largest first.
5, -10, 4, 7, 10, 1

(2)

---

43 Find the missing number: -11 - ? = 2

(2)

---

44 Work out
(a) (-11) x 3
(b) 6 ÷ 3

(2)

---

45 Work out: -5 + 4 - (-2)

(2)

---

46 Work out -12 + (-9).

(1)

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47 Work out
(a) (-3) x (-10)
(b) 18 ÷ 9

(2)

---

48 In a quiz, a team starts with 0 points. They lose 15 points for a wrong answer, gain 22 points for a bonus round, then lose 9 points for another wrong answer. What is their final score? Show your working.

(3)

---

49 The temperature in a freezer is -18°C. The temperature in a fridge is 22°C higher than the freezer. A fault then causes the fridge's temperature to rise a further 5°C. What is the fridge's temperature now? Show your working.

(3)

---

50 Calculate: -9 + 6

(1)

---

51 Work out: -30 / (-5) - 7

(2)

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Mark scheme · 1.7 Negative Numbers: 2-hour Pack

A correct answer earns full marks unless the question asks for working, a method, proof or explanation.

Question 1

-3 - 6 seen	M1
-9°C cao	A1

Answer: **-9°C**

Question 2

-5 - (-2) = -3	M1
-24 cao	A1

Answer: **-24**

Question 3

-3 - 6 seen	M1
-9°C cao	A1

Answer: **-9°C**

Question 4

-16 cao	B1

Answer: **-16**

Question 5

-4 - (-2) = -2	M1
-8 cao	A1

Answer: **-8**

Question 6

-2 - (-8) evaluated correctly (6) or equivalent	M1
8 cao	A1

Answer: **8**

Question 7

-13 cao	B1

Answer: **-13**

Question 8

-4 - 7 seen	M1
-11°C cao	A1

Answer: **-11°C**

Question 9

uses the inverse operation or tries a value and checks	M1
5 cao	A1

Answer: **5**

Question 10

at least four numbers in the correct relative order	M1
6, 3, -2, -7, -9, -11 cao	A1

Answer: **6, 3, -2, -7, -9, -11**

Question 11

at least four numbers in the correct relative order	M1
2, 1, 0, -5, -6, -11 cao	A1

Answer: **2, 1, 0, -5, -6, -11**

Question 12

12 - (-13) or 13 + 12 seen	M1
25°C cao	A1

Answer: **25°C**

Question 13

-8 - 4 evaluated correctly (-12) or equivalent	M1
-20 cao	A1

Answer: **-20**

Question 14

at least four numbers in the correct relative order	M1
11, 8, 6, 1, -9, -11 cao	A1

Answer: **11, 8, 6, 1, -9, -11**

Question 15

8 - (-6) = 14	M1
126 cao	A1

Answer: **126**

Question 16

at least four numbers in the correct relative order	M1
-9, -8, -7, -5, 9, 10 cao	A1

Answer: **-9, -8, -7, -5, 9, 10**

Question 17

8 cao	B1

Answer: **8**

Question 18

-2 cao	B1

Answer: **-2**

Question 19

7 - (-2) or 2 + 7 seen	M1
9°C cao	A1

Answer: **9°C**

Question 20

13 - (-12) evaluated correctly (25) or equivalent	M1
22 cao	A1

Answer: **22**

Question 21

at least four numbers in the correct relative order	M1
-3, 0, 2, 5, 11, 12 cao	A1

Answer: **-3, 0, 2, 5, 11, 12**

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Question 22

uses the inverse operation or tries a value and checks **M1**

-13 cao **A1**

Answer: **-13**

Question 23

at least four numbers in the correct relative order **M1**

12, 7, 0, -8, -9, -11 cao **A1**

Answer: **12, 7, 0, -8, -9, -11**

Question 24

uses the inverse operation or tries a value and checks **M1**

5 cao **A1**

Answer: **5**

Question 25

at least four numbers in the correct relative order **M1**

2, -2, -6, -9, -10, -11 cao **A1**

Answer: **2, -2, -6, -9, -10, -11**

Question 26

-12 cao **B1**

Answer: **-12**

Question 27

-9 - (-5) = -4 **M1**

-20 cao **A1**

Answer: **-20**

Question 28

-11 - 11 evaluated correctly (-22) or equivalent **M1**

-29 cao **A1**

Answer: **-29**

Question 29

at least four numbers in the correct relative order **M1**

-11, -10, -5, -1, 5, 8 cao **A1**

Answer: **-11, -10, -5, -1, 5, 8**

Question 30

(a) -96 **B1**

(b) 11 **B1**

Answer: **(a) -96, (b) 11**

Question 31

13 cao **B1**

Answer: **13**

Question 32

-13 - 3 evaluated correctly (-16) or equivalent **M1**

-13 cao **A1**

Answer: **-13**

Question 33

-13 - 6 seen **M1**

-19°C cao **A1**

Answer: **-19°C**

Question 34

(a) 55 **B1**

(b) 5 **B1**

Answer: **(a) 55, (b) 5**

Question 35

-3 cao **B1**

Answer: **-3**

Question 36

-11 - 4 seen **M1**

-15°C cao **A1**

Answer: **-15°C**

Question 37

uses the inverse operation or tries a value and checks **M1**

11 cao **A1**

Answer: **11**

Question 38

-1 cao **B1**

Answer: **-1**

Question 39

8 - (-2) or 2 + 8 seen **M1**

10°C cao **A1**

Answer: **10°C**

Question 40

-5 cao **B1**

Answer: **-5**

Question 41

(a) -84 **B1**

(b) 6 **B1**

Answer: **(a) -84, (b) 6**

Question 42

at least four numbers in the correct relative order **M1**

10, 7, 5, 4, 1, -10 cao **A1**

Answer: **10, 7, 5, 4, 1, -10**

Question 43

uses the inverse operation or tries a value and checks **M1**

-13 cao **A1**

Answer: **-13**

Question 44

(a) -33 **B1**

(b) 2 **B1**

Answer: **(a) -33, (b) 2**

Question 45

shows correct method: -5 + 4 = -1 and then -1 - (-2) or equivalent method **M1**

1 cao **A1**

Answer: **1**

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Question 46

-21 cao	**B1**

Answer: **-21**

Question 47

(a) 30	**B1**
(b) 2	**B1**

Answer: **(a) 30, (b) 2**

Question 48

correct first step, 0 - 15 = -15	**M1**
correctly applies the remaining changes, -15 + 22 - 9	**M1**
-2 cao	**A1**

Answer: **-2 points**

Question 49

correct first step, -18 + 22 = 4	**M1**
correct second step, 4 + 5	**M1**
9°C cao	**A1**

Answer: **9°C**

Question 50

-3 cao	**B1**

Answer: **-3**

Question 51

correctly evaluates -30 / (-5) = 6	**M1**
-1 cao	**A1**

Answer: **-1**

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