KS3.M-N7 Negative Numbers

AQA KS3.M-N7 · Calculators not allowed · about 60 minutes

Name: _____ Date: ____ / ____ / _____

Answer ALL questions. Show all your working.

1 Write these numbers in order, starting with the smallest: -2, 5, -7, 0, 3

(2)

2 State which is larger: -4 or -9

(1)

3 On a number line mark the point that is 3 units to the right of -6. Write its value.

(1)

4 Calculate: -3 + 7

(1)

5 Calculate: -8 - 5

(1)

6 Calculate: 6 - (-2)

(1)

7 Calculate: -4 x 3

(1)

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8 Calculate: -18 ÷ 6

(1)

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

(2)

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10 Complete the missing value: x + (-7) = -2. Find x.

(2)

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11 A hiker starts at 120 m above sea level. She walks down 250 m and then climbs 80 m. What is her final height above sea level?

(3)

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12 A shop records a loss of 45 pounds on Monday and a profit of 30 pounds on Tuesday. What is the net change over the two days?

(2)

13 Calculate: (-2) x (-5) + (-3)

(2)

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14 Work out: -20 ÷ (-4) - 2

(2)

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15 A thermometer reads -6 degrees at 6 am. By midday the temperature rises by 9 degrees. By evening it falls by 14 degrees. What is the temperature in the evening?

(3)

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16 Sarah owes 28 pounds to a friend. She pays back 10 pounds and then borrows another 6 pounds. What is her final balance (negative means she still owes money)?

(3)

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17 A small research submarine is at -80 m below sea level. It descends 30 m further and then rises 50 m. What is its final depth relative to sea level?

(3)

18 Calculate: (-3) x 4 + 5 - (-6)

(3)

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19 A hill walker starts at 450 m above sea level. He goes down 520 m, then climbs 95 m, then goes down another 30 m. What is his final height above sea level?

(4)

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20 Solve the equation: x - (-3) = -1. Find x.

(2)

Mark scheme · KS3.M-N7 Negative Numbers

Question 1

- **M1** convert to clear numeric order or compare negatives correctly
- **A1** correct order: -7, -2, 0, 3, 5 cao
- Answer: **-7, -2, 0, 3, 5**

Question 2

- **B1** correct answer stated: -4 oe
- Answer: **-4**

Question 3

- **B1** value -3 cao
- Answer: **-3**

Question 4

- **B1** 4 cao
- Answer: **4**

Question 5

- **B1** -13 cao
- Answer: **-13**

Question 6

- **B1** 8 cao
- Answer: **8**

Question 7

- **B1** -12 cao
- Answer: **-12**

Question 8

- **B1** -3 cao
- Answer: **-3**

Question 9

- **M1** shows correct method: -5 + 4 = -1 and then -1 - (-2) or equivalent method
- **A1** 1 cao
- Answer: **1**

Question 10

- **M1** sets up or shows adding 7 to both sides or equivalent method
- **A1** x = 5 cao
- Answer: **5**

Question 11

- **M1** uses subtraction for going down: 120 - 250 = -130 or equivalent
- **M1** adds the climb: -130 + 80 or shows correct sequence of operations
- **A1** -50 m cao
- Answer: **-50 m**

Question 12

- **M1** correct method: -45 + 30 or equivalent
- **A1** -15 pounds (loss) cao
- Answer: **-15 pounds**

Question 13

- **M1** multiply negatives correctly to get 10 then show addition of -3 or equivalent
- **A1** 7 cao
- Answer: **7**

Question 14

- **M1** divides: -20 ÷ -4 = 5 or equivalent
- **A1** 3 cao
- Answer: **3**

Question 15

- **M1** shows rise: -6 + 9 = 3 or equivalent
- **M1** shows fall: 3 - 14 = -11 or equivalent sequence
- **A1** -11 degrees cao
- Answer: **-11 degrees**

Question 16

- **M1** shows paying back: -28 + 10 = -18 or equivalent
- **M1** shows borrowing again: -18 - 6 or equivalent
- **A1** -24 pounds cao
- Answer: **-24 pounds**

Question 17

- **M1** shows descent: -80 - 30 = -110 or equivalent
- **M1** shows rise: -110 + 50 or equivalent
- **A1** -60 m cao
- Answer: **-60 m**

Question 18

- **M1** correct multiplication: (-3) x 4 = -12
- **M1** adds 5 correctly: -12 + 5 = -7
- **A1** -1 cao (after adding 6 from -(-6))
- Answer: **-1**

Question 19

- **M1** first move: 450 - 520 = -70 or equivalent
- **M1** second move: -70 + 95 = 25 or equivalent
- **M1** third move: 25 - 30 = -5 or equivalent
- **A1** -5 m cao
- Answer: **-5 m**

Question 20

- **M1** adds 3 to both sides or shows equivalent method
- **A1** x = -4 cao
- Answer: **-4**