# 1.13 Order of Operations and Multi-Step Problems: 30-minute Pack

Total Marks

Calculators not allowed · about 30 minutes

Name: _____ Date: ____ / ____ / _____

**Answer ALL questions. Show all your working.**

**1** Sofia works out 6 + 6 x 8. Sofia says the answer is 96. Is Sofia correct? What is the correct answer?

Answer: ___

**(2)**

**2** Reece works out 6 + 3 x 4. Reece says the answer is 36. Is Reece correct? What is the correct answer?

Answer: ___

**(2)**

**3** Poppy has 2,758 beads. Poppy puts 147 aside and shares the rest equally between 7 friends.

How many beads does each friend get?

Answer: ___

**(2)**


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**4** Kiran has 2,913 coins. Kiran is given 1,151 more and then gives away 569.

How many coins does Kiran have now?

Answer: ___

**(2)**

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**5** A charity sells homemade cakes. Each cake costs £2.50. On Monday they sell 8 cakes, on Tuesday they sell twice as many as Monday, and on Wednesday they sell 5 fewer than Tuesday. How much money do they make in total over the three days? Show your working.

**(3)**

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**6** Explain whether the following is always true, sometimes true or never true, and give a reason: "If you change the order that you add and multiply only numbers, the answer will stay the same." Use an example to support your explanation.

**(6)**

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**7** Calculate 7 x (10 - 4) + 9.

**(1)**


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**8** Notebooks cost £1.70 each. Noah buys 6.

How much does Noah pay?

Answer: £___

**(2)**

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**9** Put one pair of brackets in this calculation to make it correct.

5 + 5 x 2 = 20

Write the calculation with the brackets in.

Answer: ___

**(2)**

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**10** Work out 5 + 18 ÷ 6 x 3.

**(1)**

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**11** 10 x (7 - 1) + 5 squared =

Answer: ___

**(2)**


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# Mark scheme · 1.13 Order of Operations and Multi-Step Problems: 30-minute Pack

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

## Question 1

| | |
|---|---|
| multiplies before adding | M1 |
| 54 cao | A1 |

Answer: **54**

## Question 2

| | |
|---|---|
| multiplies before adding | M1 |
| 18 cao | A1 |

Answer: **18**

## Question 3

| | |
|---|---|
| 2,611 seen | M1 |
| 373 cao | A1 |

Answer: **373**

## Question 4

| | |
|---|---|
| 4,064 seen | M1 |
| 3,495 cao | A1 |

Answer: **3,495**

## Question 5

| | |
|---|---|
| Correctly find numbers sold each day, e.g. Monday 8, Tuesday 16, Wednesday 11 | M1 |
| Correctly find total cakes sold, e.g. 8 + 16 + 11 = 35 | M1 |
| 87.50 or £87.50 cao | B1 |

Answer: **87.50**

## Question 6

| | |
|---|---|
| Correct classification: answer states always true OR sometimes true OR never true | M1 |
| If 'always true', gives a correct reason about commutative property for single operation examples; if 'sometimes true', explains that mixing operations changes order importance unless brackets are used | M1 |
| Gives an example showing when order matters, e.g. 2 + 3 x 4 = 2 + 12 = 14 but (2 + 3) x 4 = 20 | M1 |
| Explains role of brackets or order of operations in the example | M1 |
| Clear conclusion that it is sometimes true: changing order of only additions is fine, but mixing addition and multiplication can change the result unless brackets are used cao | B1 |
| Example calculation given and conclusion linked to example cao | B1 |

Answer: **Sometimes true; adding only numbers can be done in any order, but when addition and multiplication are mixed the order matters unless brackets are used, for example 2 + 3 x 4 = 14 but (2 + 3) x 4 = 20**

## Question 7

| | |
|---|---|
| 51 cao | B1 |

Answer: **51**

## Question 8

| | |
|---|---|
| 1.70 x 6 method seen | M1 |
| £10.20 cao | A1 |

Answer: **£10.20**

## Question 9

| | |
|---|---|
| the brackets round the addition | M1 |
| (5 + 5) x 2 = 20 cao | A1 |

Answer: **(5 + 5) x 2 = 20**

## Question 10

| | |
|---|---|
| 14 cao | B1 |

Answer: **14**

## Question 11

| | |
|---|---|
| method seen | M1 |
| 85 cao | A1 |

Answer: **85**


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