FOUNDATION

1.10 BIDMAS: Test Pack

EDEXCEL 1MA1 · Calculator allowed · about 60 minutes

Total Marks

Name: _____ Date: ____ / ____ / _____

Answer ALL questions. Show all your working.

1 Work out 5 + 2 x 3

(Total for Question 1 is 1 mark)

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2 Priya buys 3 pens costing 45p each and one notebook costing £1.20. Work out the total cost of Priya's shopping.

(Total for Question 2 is 2 marks)

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3 Work out 20 - 4 x 3

(Total for Question 3 is 1 mark)

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4 Work out $5 + 2^2 \times 4 - 2$

(Total for Question 4 is 3 marks)

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5 Work out 8 x (11 - 8) + 3

(Total for Question 5 is 3 marks)

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6 Circle the correct value of 6 + 2 x 5

- ☐ A) 40
- ☐ B) 16
- ☐ C) 60
- ☐ D) 22

(Total for Question 6 is 1 mark)

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7 Work out 4^2 - 3 x 2

(Total for Question 7 is 2 marks)

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8 Four calculations are shown in the table below.

Letter	Calculation
A	6 + 4 x 3
B	(6 + 4) x 3
C	6 x 4 - 3
D	6 x (4 - 3)

Work out the value of each calculation, then match each letter to its correct value from this list: 6, 18, 21, 30.

(Total for Question 8 is 2 marks)

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9 Deepa was asked to work out 20 / 4 x 5. She wrote: 4 x 5 = 20, then 20 / 20 = 1, because she thought multiplication must always be done before division.

(a) Explain the mistake Deepa has made. **(1)**

(b) Work out the correct answer to 20 / 4 x 5 **(2)**

(Total for Question 9 is 3 marks)

10 Work out 40 - 5 x 6

(Total for Question 10 is 1 mark)

11 Work out 7 + 3 x 5.

(Total for Question 11 is 1 mark)

12 Insert one pair of brackets into 3 + 5 x 2 - 1 to make the calculation equal to 15.

(Total for Question 12 is 2 marks)

13 A gym charges a joining fee of £15 plus £8 for every month of membership.

(a) Write an expression for the total cost, in pounds, of n months of membership. **(1)**

(b) Use your expression to work out the total cost of 6 months of membership. **(2)**

(Total for Question 13 is 3 marks)

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14 Show that $(4 + 2^4) / 4 \times 3 = 15$

(Total for Question 14 is 3 marks)

15 Work out $4 \times (9 - 5) / 2$.

(Total for Question 15 is 2 marks)

16 Evaluate $2^4 - (5 + 3) \times 2$.

(Total for Question 16 is 3 marks)

17 The table shows four calculations that all use the numbers 8, 3 and 2, arranged with different brackets and operations. Work out the value of each calculation.

(a) $8 + 3 \times 2$ **(1)**

(b) $(8 + 3) \times 2$ **(1)**

(c) $8 \times (3 - 2)$ **(1)**

(d) $(8 - 3) \times 2^2$ **(1)**

(Total for Question 17 is 4 marks)

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18 Work out 2^3 x (10 - 7) / 4.

(Total for Question 18 is 3 marks)

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19 Tomasz was asked to work out 20 - 3 x $(7 - 4)^2$.
He wrote: 20 - 3 = 17, then $(7 - 4)^2$ = 9, then 17 x 9 = 153.
Explain the mistake Tomasz made and work out the correct answer.

(Total for Question 19 is 3 marks)

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Mark scheme · 1.10 BIDMAS: Test Pack

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

Question 1

11 cao **B1**

Answer: 11

Question 2

3 x 0.45 (= 1.35) seen, or equivalent method combining the pen cost correctly before adding the notebook **M1**

£2.55 cao (accept £2.55, ft from a correct method with one arithmetic slip) **A1**

Answer: £2.55

Question 3

8 cao **B1**

Answer: 8

Question 4

2^2 = 4 seen **M1**

4 x 4 = 16 seen **M1**

19 cao **A1**

Answer: 19

Question 5

brackets evaluated first **M1**

next operation correct **M1**

27 cao **A1**

Answer: 27

Question 6

B (16) cao **B1**

Answer: B) 16

Question 7

4^2 = 16 and 3 x 2 = 6 both evaluated **M1**

10 cao **A1**

Answer: 10

Question 8

all four correctly matched: A = 18, B = 30, C = 21, D = 6, oe **B2**

two or three correctly matched, dep on values shown for each calculation **B1**

Answer: A = 18, B = 30, C = 21, D = 6

Question 9

(a) correct reference to division and multiplication ranking equally and being carried out in the order they appear, left to right, not multiplication first, oe **B1**

(a) Answer: Multiplication and division have equal priority in BIDMAS, so they must be done in the order they appear, left to right; Deepa should have divided 20 by 4 first, not multiplied 4 by 5

(b) 20 / 4 (= 5) seen **M1**

(b) 25 cao **A1**

(b) Answer: 25

Question 10

10 cao **B1**

Answer: 10

Question 11

22 cao **B1**

Answer: 22

Question 12

correct trial of a bracket placement shown, e.g. (3 + 5) x 2 - 1 **M1**

(3 + 5) x 2 - 1 written, oe, cao **A1**

Answer: (3 + 5) x 2 - 1

Question 13

(a) 15 + 8n oe **B1**

(a) Answer: 15 + 8n

(b) 8 x 6 (= 48) seen, or correct substitution of n = 6 into a correct expression (ft from part a) **M1**

(b) £63 cao **A1**

(b) Answer: £63

Question 14

2^4 = 16 seen, and 4 + 16 (= 20) seen **M1**

20 / 4 (= 5) seen **M1**

5 x 3 = 15 shown, cso **A1**

Answer: 15 (shown)

Question 15

evaluate bracket 9 - 5 = 4 and multiply 4 x 4 = 16 **M1**

8 cao **A1**

Answer: 8

Question 16

evaluate 2^4 = 16 **M1**

evaluate (5 + 3) x 2 = 8 x 2 = 16 **M1**

0 cao **A1**

Answer: 0

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Question 17

(a) 14 cao **B1**

(a) Answer: 14

(b) 22 cao **B1**

(b) Answer: 22

(c) 8 cao **B1**

(c) Answer: 8

(d) 20 cao **B1**

(d) Answer: 20

Question 18

evaluate index $2^3 = 8$ **M1**

evaluate bracket 10 - 7 = 3 and multiply 8 x 3 = 24 **M1**

6 cao **A1**

Answer: 6

Question 19

identify that Tomasz subtracted 20 - 3 before completing the bracket, index and multiplication (BIDMAS order not followed) oe **M1**

correct method: $(7 - 4)^2 = 9$ then 3 x 9 = 27 **M1**

-7 cao **A1**

Answer: Tomasz's mistake: he subtracted 20 - 3 first instead of completing the bracket, index and multiplication before the subtraction. Correct answer: -7

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