Multiple-choice section

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Question | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| Answer | C | D | C | B | A | C | B | D | B | C |

Question 1 [1.1]

C

34 × 6

= (30 + 4) × 6

= 30 × 6 + 4 × 6

Question 2 [1.2]

D

43 + 34

= 64 + 81

= 145

Question 3 [1.2]

C

 = 11 and  = 12

Therefore,  is between 11 and 12.

Question 4 [1.3]

B

225 ÷ 30

= 225 ÷ 10 ÷ 3

= 22.5 ÷ 3

= 7.5

$7.50 per student

Question 5 [1.3]

A

|  |  |  |  |
| --- | --- | --- | --- |
| Option A: | Option B: | Option C: | Option D: |
| 480 ÷ 8 | 480 ÷ 8 | 480 ÷ 8 | 480 ÷ 8 |
| = 4 ÷ 8 + 8 ÷ 8 + 0 ÷ 8 | = 480 ÷ 2 ÷ 2 ÷ 2 | = 400 ÷ 8 + 80 ÷ 8 | = 48 ÷ 8 × 10 |
| = 0.5 + 1 + 0 | = 240 ÷ 2 ÷ 2 | = 50 + 10 | = 6 × 10 |
| = 1.5 | = 120 ÷ 2 | = 60 | = 60 |
|  | = 60 |  |  |

Question 6 [1.4]

C

255 ÷ 6

≈ 240 ÷ 6 ≈ 40

Question 7 [1.4]

B

328 × 56

≈ 300 × 60

≈ 1800 × 10

≈ 20 000

Question 8 [1.5]

D

5 + 27 \* 3 = 14

Option A: 5 + 27 + 3 = 35 Option B: 5 + 27 – 3 = 29

Option C: 5 + 27 × 3 = 86 Option D: 5 + 27 ÷ 3 = 14

Question 9 [1.5]

B

10 + 62 ÷ (7 + 5)

= 10 + 36 ÷ 12

= 10 + 3

= 13

Question 10 [1.6]

C

Tiffany: $48

Older brother: Double the amount $48 × 2 = $96

Younger brother: Half the amount $48 × 0.5 = $24

Difference = 96 – 24 = $72

Multiple-choice total marks: 10

Short answer section

Question 11 2 marks [1.1, 1.4]

(a) 13 + 8 = 8 + 13 is an example of the *commutative law*.

(b) To make a calculation easier, an *estimate* can be obtained by rounding to the first digit.

Question 12 4 marks [1.5]

The ‘order of operations’ rules:

1 Always do calculations in brackets first.

2 Next, do calculations with indices.

3 Do multiplication and division calculations next, in order from left to right.

4 Finally, perform addition and subtraction calculations next, in order from left to right.

Question 13 6 marks [1.1, 1.6]

1 year = 52 weeks

Every weekend for 6 months = 26 weeks

26 × 4 (half of $8)

= 20 × 4 + 6 × 4 = 104

$104 will be saved after 6 months.

He will need to borrow $169 – $104.

169 – 104

= 169 – 100 – 4 = 65

He will need to borrow $65.

This will take 65 ÷ 5 weeks to pay back at $5 per week.

65 ÷ 5

= (50 + 15) ÷ 5

= 50 ÷ 5 + 15 ÷ 5

= 10 + 3

= 13

He will need to pay back $5 per week for 13 weeks.

Question 14 5 marks [1.3]

(a) Jonathon’s working  
46 × 35  
= 46 × 3 + 46 × 5  
= 138 + 230  
= 368

(b) Correct working  
46 × 35  
= 46 × 30 + 46 × 5  
= 1380 + 230  
= 1610

(c) Jonathon split up the ‘ones’ place value correctly but has forgotten that the first digit in the number he is splitting is in the ‘tens’ place-value column.

Question 15 3 marks [1.1]

79 + 246 + 11

= 79 + 11 + 246

= 90 + 246

= 336

Question 16 3 marks [1.1]

486 × 7

= 400 × 7 + 80 × 7 + 6 × 7

= 2800 + 560 + 42

= 3402

Question 17 2 marks [1.2]

1005

= 100 × 100 × 100 × 100 × 100

= 10 000 000 000

Question 18 3 marks [1.2]

(a) 4 × 4 × 4 × 4 × 4 = 45

(b) base 8, index 7 is 87

(c) eight cubed is 83

Question 19 3 marks [1.2]

(a)  = 11

(b)  = 3

(c)  = 80

Question 20 4 marks [1.2]



In ascending order: , , 24, 52, 102

Question 21 2 marks [1.2]

(a) 4 000 000 = 4 × 106

(b) 30 000 = 30 × 103

Question 22 6 marks [1.3]

|  |  |
| --- | --- |
| (a) 270 ÷ 6 = 270 ÷ 3 ÷ 2 = 90 ÷ 2 = 45 | (b) 25 × 15 = 25 × 3 × 5 = 75 × 5 = 375 |

Question 23 3 marks [1.3]

|  |  |  |  |
| --- | --- | --- | --- |
|  | 30 | 9 |  |
| 40 | 1200 | 360 | 1560 |
| 5 | 150 | 45 | + 195 |
|  | 1350 | 405 | 1755 |

Question 24 2 marks [1.3]

3000 ÷ 8

= (1000 ÷ 8) × 3

= 125 × 3 = 375

$375 per person

Question 25 4 marks [1.4]

|  |  |
| --- | --- |
| (a) 8565 ÷ 53 ≈ 9000 ÷ 50 = 900 ÷ 5 = 180 | (b) 3050 × 283  ≈ 3000 × 300  = 900 000 |

Question 26 9 marks [1.5]

|  |  |  |
| --- | --- | --- |
| (a) 8 × (9 – 5) ÷ 2 = 8 × 4 ÷ 2 = 32 ÷ 2 = 16 | (b) 45 ÷ 9 × 23 ÷ (5 – 1) + 11 = 5 × 8 ÷ 4 + 11 = 40 ÷ 4 + 11 = 10 + 11 = 21 | (c) 80 + 60 ÷ (3 × 5) – 7 × 2 + 11 = 80 + 60 ÷ 15 – 14 + 11 = 80 + 4 – 14 + 11 = 70 + 11 = 81 |

Question 27 4 marks [1.5]

(a) 5 + 9 ÷ 3 + 4 = 2  
(5 + 9) ÷ (3 + 4) = 2

(b) 37 + 8 ÷ 10 – 6 = 39  
37 + 8 ÷ (10 – 6) = 39

Short answer total marks: 65

Extended answer section

Question 28 6 marks [1.1, 1.5, 1.6]

(a) First call: 35 + 90 = 125  
Second call: 35 + 4 × 90  
= 35 + 360 = 395  
Third call: 0 + 65 × 10 = 650  
Total cost = 125 + 395 + 650  
= 1170 cents  
= $11.70

(b) Remaining credit = Credit – Total cost of calls  
1500 – (35 + 90 + 35 + 4 × 90 + 65 × 10)  
= 1500 – 1170  
= 330 cents  
Yes, Benjamin has enough credit; he has $3.30 remaining.

Question 29 4 marks [1.3, 1.6]

Total number of people = 900 + 75 = 975

975 ÷ 65

= 975 ÷ 5 ÷ 13

= 195 ÷ 13

= 15

Question 30 10 marks [1.1, 1.3, 1.6]

(a) For 250-mL bottle: 20 × 250 = 5000 g = 5 kg  
For 600-mL bottle: 20 × 600 = 12 000 g = 12 kg  
For 1000-mL bottle: 20 × 1000 = 20 000 g = 20 kg

(b) For 250-mL bottle: 1000 ÷ 5 = 200 boxes  
For 600-mL bottle: 1000 ÷ 12 = 1000 ÷ 2 ÷ 6 = 83 boxes  
For 1000-mL bottle: 1000 ÷ 20 = 1000 ÷ 10 ÷ 2 = 50 boxes

(c) Below are two possible combinations; there may be more.  
One combination: 20 boxes of 1000 mL + 25 boxes of 600 mL + 60 boxes of 250 mL  
= 20 × 20 + 25 × 12 + 60 × 5  
= 400 + 300 + 300  
= 1000 kg  
Another combination: 25 boxes of 1000 mL + 30 boxes of 600 mL + 28 boxes of 250 mL  
= 25 × 20 + 30 × 12 + 28 × 5  
= 500 + 360 + 140  
= 1000 kg

Extended answer total: 20

TOTAL test marks: 95