Multiple-choice section

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

Question 1 [1.1]

D

-4 – (+11)

= -4 – 11 = -15

Question 2 [1.3]

B

4

Question 3 [1.4]

C

-4 + (2 × -4) + 2

= -4 + -8 + 2

= -4 – 8 + 2 = -10

Question 4 [1.4]

D



= 12 – 9 × -2

= 12 + 18 = 30

Question 5 [1.4]

C

(-4)2 + 22

= 16 + 4 = 20

Question 6 [1.5]

D

36 ÷ 32

= 3(6 – 2)

= 34

= 3 × 3 × 3 × 3 = 81

Question 7 [1.6]

B

50 + 80

= 1 + 1 = 2

Question 8 [1.6]

A

(5 × 2)2

= 102 = 10 × 10 = 100

Question 9 [1.4]

D

Need to multiply, not add.

Question 10 [1.3]

D

Each subsequent number is ÷ -2

4 ÷ -2 = -2

Multiple-choice total marks: 10

Short answer section

Question 11 2 marks [1.1]

(a) -4 (b) +7

Question 12 2 mark [1.1]

7, 1, 0, -2, -5

Question 13 5 marks [1.4]

(a) 3 + (-2) – (+9)  
= 3 – 2 – 9 = -8

(b) -9 × -8 = 72

(c) (-2)2 + (1)2  = 4 + 1 = 5

(d) (-2)2 – (3)2  + (-2)2 = 4 – 9 + 4 = -1

(e) -36 ÷ -4 = 9

Question 14 4 marks [1.1]

(a) Friday -7 °C

(b) Monday 2 °C

(c) From Thursday to Friday, a drop of 8 °C

Question 15 2 marks [1.2]

Loss for each hockey stick is -$97 + $65 = -$32

Loss for 15 hockey sticks is 15 × -$32 = -$480. The loss for the store is $480.

Question 16 2 marks [1.2]

One B, one A, four Fs

-2 + 1 + 4 × -3

= -2 + 1 – 12 = -13

Question 17 2 marks [1.3]

-$2625 ÷ 5 = -$525

Question 18 2 marks [1.3]

-$1 980 000 ÷ 12 = -$165 000

Question 19 2 marks [1.3]

From 6 pm to 4 am the next day is 10 hours. The temperature change is a drop of   
14 °C – (-6 °C) = 20 °C. This can also be expressed as -20 °C. The average change in   
temperature per hour = -20 °C ÷ 10 hours = -2 °C per hour.

Question 20 4 marks [1.4]

|  |  |
| --- | --- |
| (a) 10 – 9 × -2 + (-3)2 = 10 + 18 + 9 = 37 | (b) -3 × -8 – (-18 ÷ -3) +(-3) = 24 – 6 – 3 = 15 |

Question 21 3 marks [1.4]

5 × -$3 million + 7 × $4 million

= -$15 million + $28 million = -$13 million

The company made a profit of $13 million for the year.

Question 22 4 marks [1.5]

|  |  |
| --- | --- |
| (a) Method 1 (-2)2  (2)3 = 4 × 8 = 32 | (b) (53  114) ÷ (52  113) = 5(3 - 2) × 11(4 - 3) = 51 × 111 = 5 × 11 = 55 |

Question 23 5 marks [1.6]

(a) 

(b)   


(c) (42)3 = 42 × 3 = 46 = 4 × 4 × 4 × 4 × 4 × 4 = 4096

Question 24 2 marks [1.6]

108 = 3 × 3 × 3 × 2 × 2 = 33 × 22

Short answer total marks: 41

Extended answer section

Question 25 5 marks [1.1]

(a) +6, -9, +2, -11

(b) travelled down 12 floors

(c) +12

(d) 6 floors down, 9 floors up, 2 floors down, 11 floors up

(e) 12th floor

Question 26 4 marks [1.1]

(a) 0 + (-17) + (+9) + (-13)

(b) -21 m, or 21 m below the surface of the water

(c) -15 + (-12) + (+8) = -19 m, or 19 m below the surface of the water

(d) The second submarine is 2 m above the first.

Extended answer total marks: 9

TOTAL test marks: 60