­­Multiple-choice section

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

Question 1 [1.1]

D

6 – 9 = -3

Question 2 [1.1]

C

-5 – 11 = -16

Question 3 [1.2]

A

3 × -4 = -12; a positive multiplied by a negative gives a negative number.

Question 4 [1.5]

D

(-5)2 = -5 × -5 = 25

Question 5 [1.3]

C

4

Question 6 [1.4]

B

-1 + (3 × -3) +2

= -1 + -9 + 2

= -8

Question 7 [1.4]

B



= 5 – 4 × -1

= 5 + 4 = 9

Question 8 [1.4]

C

(-4)2 +22

= 16 + 4 = 20

Question 9 [1.6]

A

50 + 70

= 1 + 1 = 2

Question 10 [1.4]

C

Need to multiply, not add.

Multiple-choice total marks: 10

Short answer section

Question 11 2 marks [1.1]

(a) -4 (b) -6

Question 12 1 mark [1.1]

-5, -2, 0, 1, 5

Question 13 5 marks [1.4]

|  |  |
| --- | --- |
| (a) -3 + (-5) + (-1) = -3 – 5 – 1 = -9 | (b) -6 × -3 = 18 |
| (c) 32 – 22  + (-5)2  = 9 – 4 + 25   = 30 | (d) 28 ÷ -7 = -4 |

Question 14 4 marks [1.1]

(a) Wednesday -3 °C

(b) Monday 5 °C

(c) From Monday to Tuesday, a drop of 7 °C

Question 15 2 marks [1.2]

Loss for each hockey stick is -$80 + $60 = -$20

Loss for four hockey sticks is 4 × -$20 = -$80. The loss for the store is $80.

Question 16 2 marks [1.2]

One B, two Es, one F

1 × -3 + 2 × 3 + 1 × -1

= -3 + 6 + -1 = 2

Question 17 2 marks [1.3]

-$1230 ÷ 3 = -$410

Question 18 2 marks [1.3]

-$1 680 000 ÷ 12 = -$140 000

Question 19 2 marks [1.3]

From 6 pm to 12 midnight is 6 hours.

The temperature change is a drop of 9 °C – (-3 °C) = 12 °C. This can also be expressed as -12 °C.

The average change in temperature per hour = -12 °C ÷ 6 hours = -2 °C per hour.

Question 20 4 marks [1.4]

(a) (12 – 4)  (-2 + 3)  
= 8 × 1 = 8

(b) -5 × -2 – (-12 ÷ -4) + (-6)  
= 10 – 3 – 6 = 1

Question 21 3 marks [1.4]

5 × -$4 million + 7 × $4 million

= -$20 million + $28 million = $8 million

The company made a profit of $8 million for the year.

Question 22 4 marks [1.5]

(a) (-4)2  (1)3  
= 16 × 1 = 16

(b) (33  24) ÷ (22  33)  
= 33 - 3 × 24 - 2  
= 1 × 22  
= 1 × 4 = 4

Question 23 4 marks [1.5]

(a) 

(b)



Question 24 2 marks [1.6]

(a) 60 = 1 (b) (23)2 = 2(3 × 2) = 26 = 2 × 2 × 2 × 2 × 2 × 2 = 64

Question 25 2 marks [1.6]

48 = 2 × 2 × 2 × 2 × 3

= 24 × 3

Short answer total marks: 41

Extended answer section

Question 26 9 marks [1.4]

(a) There is one more black counter than white counters.

(b) (i) ● ● (ii) ● ● 🔾 = -1

(c) ● + (● ● → 🔾 🔾) = ● 🔾 🔾 = +1, so -1 – -2 = +1

(d) 🔾 + (● ● → 🔾 🔾)= 🔾 + 🔾 🔾 = 🔾 🔾 🔾, so +1 – -2 = +3

(e) 🔾 🔾 + 🔾 🔾 = +4

Extended answer total marks: 9

TOTAL test marks: 60