Multiple-choice section

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Question | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 |
| Answer | A | C | B | A | D | D | A | C | B | C | C |

Question 1 [2.1]

A

Multiple of 24

24 × 1 = 24

24 × 2 = 48

24 × 3 = 72

24 × 4 = 96

Question 2 [2.2]

C

The first five prime numbers are 2, 3, 5, 7, 11

0, 1, 4 and 9 are not prime numbers.

Question 3 [2.4]

B

-5 < 4

Question 4 [2.5]

A

7 – 3 – 6 = 4 – 6 = -2

Question 5 [2.1]

D

1365 divisible by 2:

Must be an even number. So not divisible by 2.

1365 divisible by 3:

1 + 3 + 6 + 5 = 15

15 is divisible by 3.

1365 divisible by 6.

Must be divisible by 2 and divisible by 3.

So not divisible by 6.

Question 6 [2.4]

D

2, 5, 7, 9 is the only set of numbers in ascending order.

Set A and C are in no clear order. Set B is in descending order.

Question 7 [2.6]

A

9 – (-2) = 11

Question 8 [2.7]

C

-8 – (-1) – (+2)

= -8 + 1 – 2

Question 9 [2.3]

B

20 = 2 × 2 × 5

Question 10 [2.2]

C

5, 29 and 17 are prime numbers.

25 is composite.

Factors of 25 are 1, 5, 25

Question 11 [2.1]

C

10: 1, 2, 5, 10

15: 1, 3, 5, 15

HCF 5

Multiple-choice total marks: 11

Short answer section

Question 12 3 marks [2.1]

(a) A number is divisible by 2 if the last digit is an even number.

(b) A number is divisible by 8 if the number formed by the last 3 digits is divisible by 8.

(c) A number is divisible by 9 if the sum of the digits is divisible by 9.

Question 13 2 marks [2.2]

Two numbers are said to be co-prime if their highest common factor is 1. 3 and 4 are co-prime numbers as well as 7 and 15.

Question 14 3 marks [2.1]

(a) 18 and 20  
18: 1, 2, 3, 6, 9, 18  
20: 1, 2, 4, 5, 10, 20  
HCF: 2

(b) 42 and 56  
42: 1, 2, 3, 6, 7, 14, 21, 42  
56: 1, 2, 4, 7, 8, 14, 28, 56  
HCF: 14

(c) 15 and 30  
15: 1, 3, 5, 15  
30: 1, 2, 3, 5, 6, 10, 15, 30  
HCF: 15

Question 15 3 marks [2.1]

(a) 60, 2862

(b) 60, 81, 435, 2892

(c) 60, 435

|  |  |  |  |
| --- | --- | --- | --- |
|  | ÷ 2 | ÷ 3 | ÷ 5 |
| 60 | Even, so ÷ 2 | 6 + 0 = 6  6 is ÷ 3, so 60 is ÷ 3 | End in 0, so is ÷ 5 |
| 81 | Not even | 8 + 1 = 9  9 is ÷ 3, so 81 is ÷ 3 | Does not end in 0 or 5, so is NOT ÷ 5 |
| 435 | Not even | 4 + 3 + 5 = 12  12 is ÷ 3, so 435 is ÷ 3 | Ends in 0 or 5, so is ÷ 5 |
| 2892 | Even, so ÷ 2 | 2 + 8 + 9 + 2 = 21  21 is ÷ 3, so 2892 is ÷ 3 | Does not end in 0 or 5, so is NOT ÷ 5 |

Question 16 2 marks [2.1]

Use the LCM of 15 and 20 to find the number of packets required.

15: 15, 30, 45, 60, 75

20: 20, 40, 60, 80

LCM is 60.

60 is the 4th multiple of 15, so 4 packets of bread rolls.

60 is the 3rd multiple of 20, so 3 packets of cheese.

Question 17 3 marks [2.2]

(a) 2, 3, 5, 7, 11

(b) 19, 23, 29, 31

(c) 47, 53, 59, 61, 67

Question 18 1 mark [2.2]

72, 74, 75, 76, 77, 78

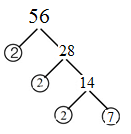
Question 19 3 marks [2.2]

(a) 14 and 15  
14: 1, 2, 7, 14  
15: 1, 3, 5, 15  
HCF: 1, co-prime

(b) 14 and 21  
14: 1, 2, 7, 14  
21: 1, 3, 7, 21  
HCF: 7, not co-prime

(c) 15 and 28  
15: 1, 3, 5, 15  
28: 1, 2, 4, 7, 14, 28  
HCF: 1, co-prime

Question 20 3 marks [2.3]



(other trees possible)

56 = 2 × 2 × 2 × 7 = 23 × 7

Question 21 2 marks [2.3]

23 × 33  
= 2 × 2 × 2 × 3 × 3 × 3  
= 8 × 27  
= 216

Question 22 3 marks [2.4]

(a) 3 °C below zero = -3 °C

(b) A bank deposit of $140 = +$140

(c) The river rose by 650 mm = +650 mm

Question 23 3 marks [2.4]

(a) +11 > -8

(b) -7 < -3

(c) 0 > -1

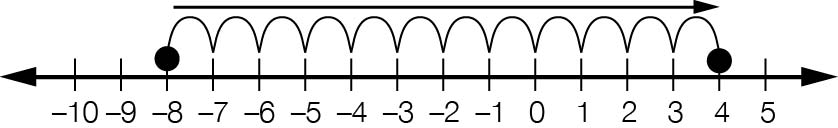
Question 24 2 marks [2.4]

(a) 134 + 9 = 143 m

(b) 141 – 49 = 92 m

Question 25 2 marks [2.5]

-8 + 12 = +4



Question 26 3 marks [2.5]

(a) 8 + 6 + 12 = 14 + 12 = 26

(b) -2 + 4 + 2 = 2 + 2 = 4

(c) 15 – 19 – 1 = -4 – 1 = -5

Question 27 3 marks [2.6]

(a) 10 + (-3) + (-7) = 10 – 3 – 7 = 0

(b) -1 + (-6) + (-8) = -1 – 6 – 8 = -15

(c) 17 – (-4) – (-12) = 17 + 4 + 12 = 33

Question 28 2 marks [2.6]

(a) -10 + (-4) = -14 is negative ten plus negative four equals negative fourteen.

(b) +9 – (-6) = 15 is positive nine subtract negative six equals positive fifteen.

Question 29 2 marks [2.7]

(a) -14 – (-4) + -3 + 7 = 0  
False -14 + 4 – 3 + 7 = -10 – 3 + 7 = -6

(b) 8 – 2 – (-3) - 5 = 4  
True 8 – 2 + 3 – 5 = 6 + 3 – 5 = 4

Question 30 2 marks [2.6]

35 + 50 + 20 + -10 + -25

= 105 – 35

= 70

A $70 profit was made by the school canteen.

Short answer total: 47

Extended answer section

Question 31 4 marks [2.1]

Using prime factors: HCF = 3 × 3 = 9

36 = 2 × 2 × 3 × 3

27 = 3 × 3 × 3

18 = 2 × 3 × 3

There are 9 boxes with 9 donuts in each box and 81 donuts altogether.

36 ÷ 9 = 4 27 ÷ 9 = 3 18 ÷ 9 = 2

There are 4 chocolate donuts, 3 strawberry donuts and 2 caramel donuts in each box.

Question 32 4 marks [2.2]

|  |  |
| --- | --- |
| Three consecutive prime numbers  2 + 3 + 5 = 10, not prime  3 + 5 + 7 = 15, not prime  5 + 7 + 11 = 23 prime, but six consecutive prime numbers will not equal 23  7 + 11 + 13 = 41 prime | Six consecutive prime numbers  2 + 3 + 5 + 7 + 11 + 13 = 41 prime |

The smallest prime number that can be expressed as the sum of 3 consecutive prime numbers as well as 6 consecutive prime numbers is 41.

Question 33 2 marks [2.7]

-28 + -41 + -54 + -57 + -58 + -60 + -60 + -60 + -51 + -39 + -28 = -536

-590 – (-536) = -54

April’s average temperature is -54 °C.

Question 34 2 marks [2.6]

There are many solutions to the following questions.

(a) 43  
Card C – Card D + Card C – Card A – Card A  
9 – (-27) + 9 + 1 + 1 = 43  
or Card C + Card C + Card C + Card C + Card A + Card A  
9 + 9 + 9 + 9 + 1 + 1 = 38

(b) -12  
Card D + Card C + Card C + Card B  
-27 + 9 + 9 + (-3) = -12

Question 35 2 marks [2.4]

-0.16 is not an integer because it is a decimal number or a fraction. Integers are positive or negative whole numbers.

Extended answer total: 14

TOTAL test marks: 72