1 a and b are both prime numbers.

They are each less than 20

Give an example where $a + b$ is odd but **not** prime.

[2 marks]

let $a = 2$, $b = 7$

$a + b = 2 + 7 = 9$

(2)

$a =$ 2 $b =$ 7

2 Work out the lowest common multiple (LCM) of 120 and 144

[2 marks]

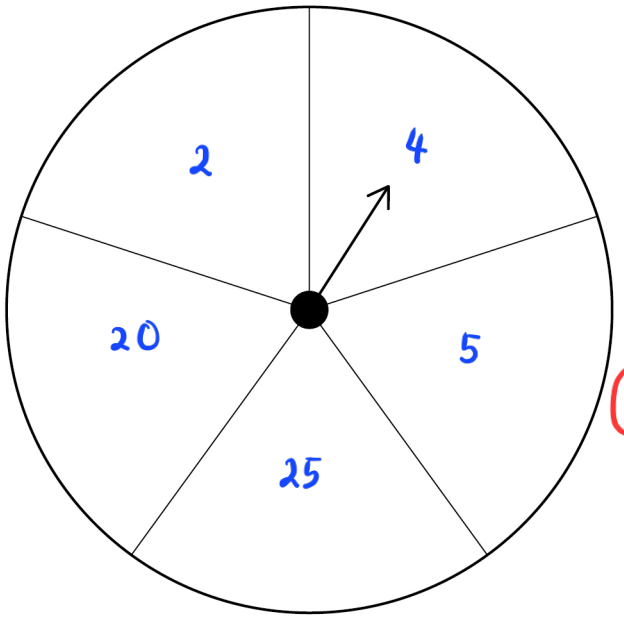
$120 = 2 \times 2 \times 2 \times 3 \times 5$

$144 = 2 \times 2 \times 2 \times 2 \times 3 \times 3$ (1)

Lcm: $2 \times 2 \times 2 \times 2 \times 3 \times 3 \times 5 = 720$ (1)

Answer 720

3 A spinner has five equal sections.



3

Write a number in each section so that

the numbers are all different factors of 100

P(single-digit number) $= \frac{3}{5}$

P(multiple of 25) $= \frac{1}{5}$

[3 marks]

factors of 100 : 1, 2, 4, 5, 10, 20, 25, 50, 100

single digit no. : 1, 2, 4, 5

multiple of 25 : 25, 50, 100

4 Work out

cube root of 512 : reciprocal of 0.4

Give your answer in the form n : 1

[3 marks]

$\sqrt[3]{512} = 8$ (1) , $\frac{1}{0.4} = \frac{10}{4} = 2.5$ (1)

$8 : 2.5$ $\quad$ $8 \div 2.5 = 3.2$

Answer 3.2 (1) : 1

5 Circle the factor of 32

[1 mark]

16 12 3 64

6 Work out two numbers that

are multiples of 9

and

have a difference of 54

[2 marks]

Multiples of 9 : (9), 18, 27, 36, 45, 54, (63)

63 - 9 = 54

Answer 63 (1) and 9 (1)

7 Erik thinks of a prime number between 20 and 30

His number is x% of 125

Work out **one** possible value of x.

[3 marks]

Prime number : 23 (1)

$\frac{23}{125} \times 100$ % (1)

= 18.4

Answer 18.4 (1)

8 Show that 2125 can be written as

a cube number **multiplied** by a prime number between 10 and 20

[2 marks]

prime number : 11, 13, 17, 19

2125 is only divisible by 17.

$2125 \div 17 = 125$

$\sqrt[3]{125} = 5$ (2)

$\therefore 5^3 \times 17 = 2125$

9 Circle the number that is a factor of 10

[1 mark]

7 6 5 4

1

10 (a) Work out the multiple of 60 that is closest to 400

[2 marks]

60, 120, 180, 240, 300, 360, 420 (1)

Answer 420 (1)

10 (b) Work out the highest common factor (HCF) of 12 and 18

[2 marks]

12 → 2, 6 → 2, 3

18 → 2, 9 → 3, 3

$2^2 \times 3$ $= 2 \times 3^2$ HCF $= 2 \times 3 = 6$

Answer 6 (2)

11 Two prime numbers are multiplied together.

The answer is an **even** number between 50 and 60

Complete the calculation.

[3 marks]

(1) (1) (1)

29	×	2	=	58

prime number : (2) 3, 5, 7, 11, 13, 17, 19, 23, (29)

Even number $50 < x < 60$: 52, 54, 56, (58)

12 (a) Complete the boxes using

a factor of 12

and

a factor of 40

[2 marks]

$$\boxed{3} \times \boxed{10} = 30$$

(1) (1)

12 (b) Complete the boxes using

a square number

and

a prime number.

[2 marks]

$$\boxed{36} \div \boxed{2} = 18$$

(1) (1)

13 Circle the number that is a multiple of 25

[1 mark]

55 65 75 85

1

14 Written as the product of prime factors,

$12\,600 = 2^3 \times 3^2 \times 5^2 \times 7$

and

$14\,112 = 2^5 \times 3^2 \times 7^2$

Work out the highest common factor (HCF) of 12 600 and 14 112

Give your answer as an integer.

[2 marks]

HCF : $2^3 \times 3^2 \times 7$ = $8 \times 9 \times 7$ (1)

= 504 (1)

Answer 504

15 (a) Write down the **two** prime numbers between 25 and 35

[2 marks]

Answer 29 (1) and 31 (1)