**IGCSE** Mathematics

# Grade Grabber 10

40 Mark Paper

## **Question 1**

(i) Find the Highest Common Factor of 63 and 105

[1 mark]

(ii) Find the Lowest Common Multiple of 63 and 105

[ 1 mark ]

## **Question 2**

In the diagram, *A*, *B*, *C*, *D* and *E* are points on the circumference of a circle centre *O*. The line AOC is a diameter of the circle.

Angle AOB is equal to 85° and angle DBO is equal to 24°



Find: (i) angle *OAB* 

angle BDC

angle OCD

angle AED

(ii)

(iii)

(**iv**)

[ 2 marks ]

[ 2 marks ]

[ 2 marks ]

[ 2 marks ]

### **Question 3**

Solve these equations;

(i) 
$$8x + 13 = 41$$
 [1 mark]  
(ii)  $4(5x - 7) = 2(7x + 4)$  [2 marks]

$$(iii) \quad x^2 - 11x + 24 = 0$$

[ 2 marks ]

**Question 4** The perimeter of a triangle is 108 cm. The lengths of its sides are in the ratio 2 : 3 : 4

Work out the size of the largest angle.

[4 marks]

# Question 5

A coin is biased such that the probability of it landing heads is three times the probability of it landing tails. The coin is tossed twice.

What is the probability that

(i) It lands "Heads" both times ?

[ 2 marks ]

(ii) It lands "Heads" exactly once ?

[ 3 marks ]

# **Question 6**

In the figure below, *ED* is parallel to *BC*.



(a) Calculate:

> (i) the linear scale factor of the enlargement mapping triangle AED onto triangle ABC.

> > [ 1 mark ]



[ 1 mark ]

If the area of triangle ABC is 20 cm<sup>2</sup>, what is the area of triangle AED? **(b)** 

[ 3 marks ]

**Question 7** 

Solve the equation :

$$\frac{5}{t-3} - \frac{2}{t+2} = 0$$

[ 3 marks ]

$$\frac{5}{t-3} - \frac{2}{t+2} =$$

#### **Question 8**

A cuboid *ABCDEFGH* measures 7 cm by 4 cm by 3 cm, as shown below.



Calculate, in degrees, the angle *HAC*. Give your answer accurate to 1 decimal place.

[4 marks]

## **Question 9**

The curve C has equation  $y = 4x^3 - 3x$ Find the range of values of x for which the gradient of C is negative.

[4 marks]

This document is a part of a **Mathematics Community Outreach Project** initiated by Shrewsbury School It may be freely duplicated and distributed, unaltered, for non-profit educational use In October 2020, Shrewsbury School was voted "**Independent School of the Year 2020**" © 2023 Number Wonder Teachers may obtain detailed worked solutions to the exercises by email from mhh@shrewsbury.org.uk