

ELGIN ACADEMY

Prelim Examination 2008 / 09

MATHEMATICS

National Qualifications - Intermediate 1

Maths Units 1, 2 and 3

Paper 1 (non-calculator)

Time allowed - 35 minutes

Fill in these boxes and read carefully what is printed below

Full name of centre

Town

Forename(s)

Surname

Date of birth

Day Month Year

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Candidate number

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Seat number

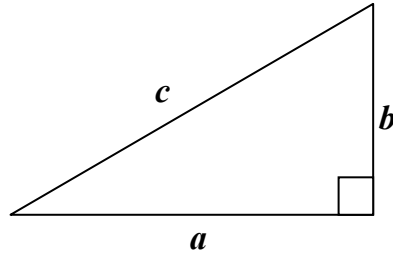
1. You may **NOT** use a calculator.
2. Write your working in the spaces provided.
3. Full credit will be given only where the solution contains appropriate working.

FORMULAE LIST

Circumference of a circle: $C = \pi d$

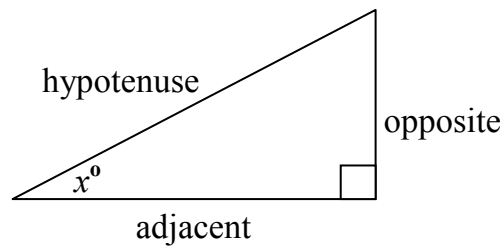
Area of a circle: $A = \pi r^2$

Theorem of Pythagoras:



$$a^2 + b^2 = c^2$$

Trigonometric ratios in a right angled triangle:



$$\tan x^\circ = \frac{\text{opposite}}{\text{adjacent}}$$

$$\sin x^\circ = \frac{\text{opposite}}{\text{hypotenuse}}$$

$$\cos x^\circ = \frac{\text{adjacent}}{\text{hypotenuse}}$$

All questions should be attempted

Marks

1. (a) Find 20% of 260grams.

1

(b) Find $\frac{2}{7}$ of £84

1

(c) Find $-8 + (-5)$

1

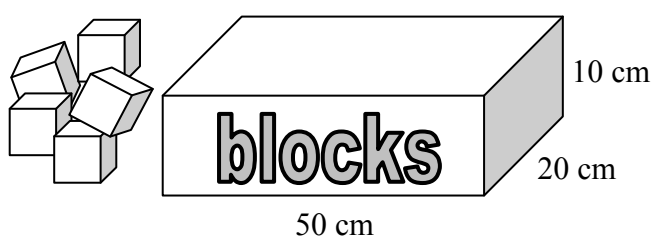
2. Cream buns cost £1.05 for 3. How much would 5 cream buns cost?

2

3. If $a = 3$ and $b = 5$, evaluate $3a^2 - b$.

3

4. Cube shaped building blocks of side 5 cm are packed in boxes measuring 50 cm by 20 cm by 10 cm.



(a) How many blocks will fit in the box?

3

25 of the blocks are coloured red.

(b) What is the probability that the first brick chosen from the box will be red?

1

5. A haulage contractor delivers pallets of brick to building sites.
The cost of this is found using the following formula:

$$\text{Cost in pounds} = 125 + 7.5 \times \text{number of pallets}$$

Calculate the cost of delivering 300 pallets of bricks.

3

6. Multiply out the brackets and simplify

$$7x - 2(3x - 4)$$

2

7. Vicky runs at 6 km/h for 2 hours and 30 minutes. What distance will she cover in this time?

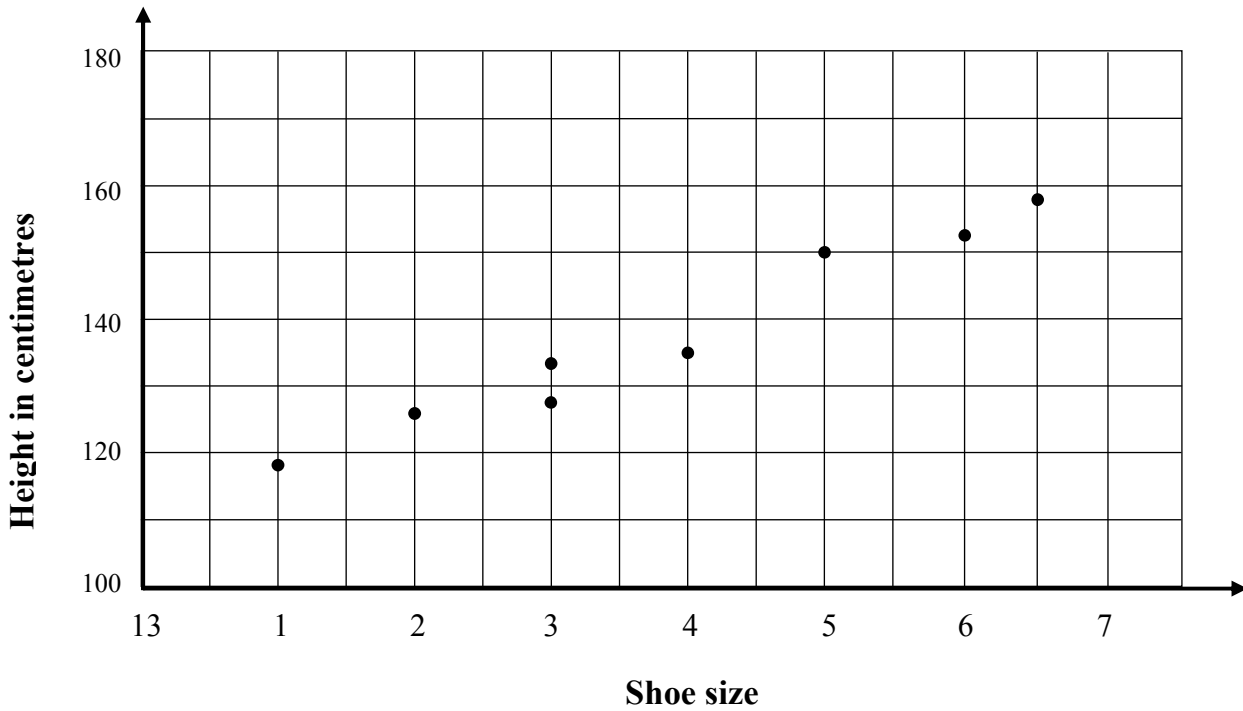
3

8. Factorise $24x + 16y$

2

9. The table and scatter graph shows the relationship between the heights and shoe sizes of 8 pupils.

Name	Jim	Sandy	June	Lily	Paul	Joan	Simon	Sally
Shoe Size	3	6	4	6½	3	5	2	1
Height (cm)	127	152	135	158	133	150	126	119



- a. Draw the line of best fit onto the diagram above.
- b. Put a circle round the dot representing the data for Paul.
- c. Use your line to estimate the height of a pupil who takes a size 4½ in shoes.

1	
1	
1	

10. In a radio phone-in competition the contestants are asked 20 questions. For each correct answer the contestant gets 5 points and for each incorrect one 2 points are deducted.

Charles answered 7 questions correctly and the rest incorrectly.

How many points did Charles score?

2

11. A set of scores in a class test (out of 50) are as follows :

35, 50, 38, 50, 42, 48, 44, 45, 45, 36, 50, 40, 49, 42, 45, 47, 40

Show these scores in a stem and leaf chart.

3

END OF QUESTION PAPER