

For
Examiner's
Use

Answer ALL questions

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1. Express 942.713

- a) correct to the nearest whole number
 b) correct to 2 significant figures.
 c) Correct 2 decimal places

Ans: a) _____ [1]

b) _____ [1]

c) _____ [1]

2. List the following in ascending order.

$$\frac{1}{9}, 0.1, 11\%, 0.101$$

Ans: _____ [1]

3. Write down the 2 missing terms in the following sequences.

a) 3, 9, 7, 13, 11, 17, _____, _____ [1]

b) $\frac{1}{8}, \frac{4}{27}, \frac{9}{64}, \underline{\hspace{1cm}}, \underline{\hspace{1cm}}$ [2]4. Given that m and n are two prime numbers and their product is 106, calculate their difference.

Ans: _____ [1]

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5.

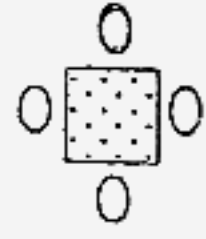


Figure 1

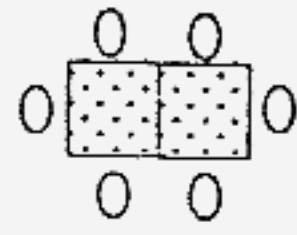


Figure 2

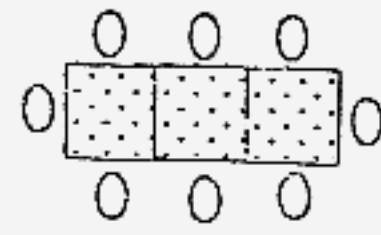


Figure 3

Figure 4

Given that d is the number of dots and s is the number of squares,

- Draw Figure 4 next to Figure 3.
- Find the value of d , when $s = 6$.
- Write down a formula connecting d and s .

Ans: a) as drawn [1]

b) $d =$ _____ [1]

c) _____ [1]

6. The marks obtained by a group of primary five students for a 50 marks Maths test were recorded. Below is a stem and leaf diagram of the students' results.

1	4	8	9						
2	2	2	3	4	5	7	7	8	9
3	0	0	0	3	6	9			
4	1	3	4	4	5	7	7		

- How many primary five students are there ?
- What is the most common mark achieved by these students ?
- Find the percentage of students who failed the test.

Ans: a) _____ [1]

b) _____ [1]

c) _____ % [1]

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7. a) Express 126 as the product of its prime factors in index notation.
b) Hence, find the smallest integer p , such that $126p$ is a perfect square.

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Ans: a) _____ [2]

b) _____ [2]

8. A map is drawn to a scale of 1 : 250000. If the perimeter of a square park on the map is 2.4 cm, calculate the actual area of the park in km^2 .

Ans: _____ km^2 [4]

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9. a) An interior angle of a regular polygon is 11 times bigger than that of the exterior angle, x . Calculate x . Hence, calculate the number of sides of this polygon.
- b) Calculate the number of sides of another regular polygon if the sum of the interior angles is 2880° .

Ans: a) $x =$ _____ [2]

_____ sides [1]

b) _____ sides [2]

10. If $X : Y = 3 : 8$ and $Y : Z = 2 : 5$, find $X : Z$.

Ans: _____ [2]

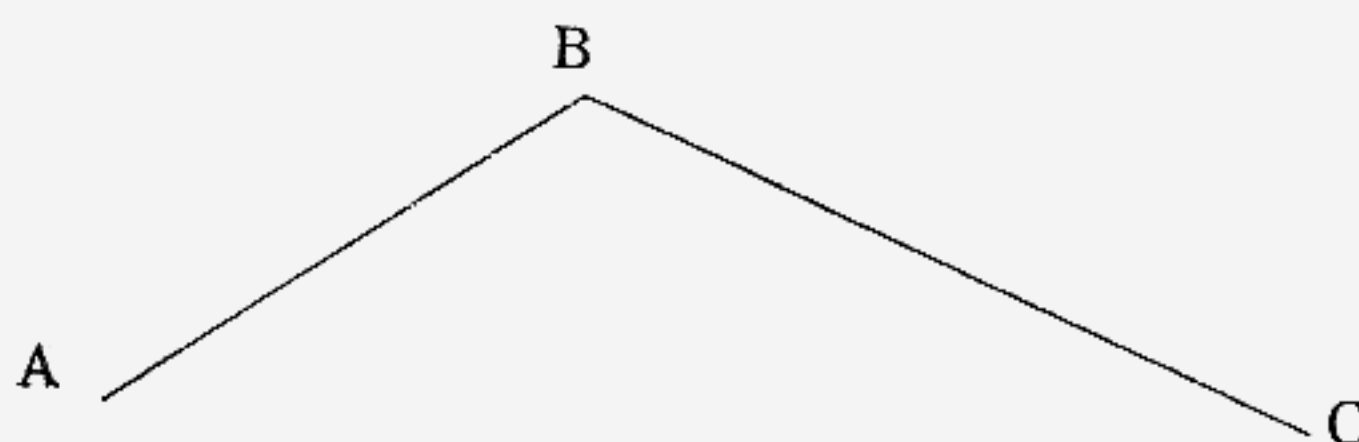
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11. Four men renovate an office in 21 days. How long would twelve men take ?

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Ans : _____ days [2]

12. On the diagram provided below,



- a) Construct the perpendicular bisector of AB, [1]
b) Construct the angle bisector of $\angle ABC$, and [1]
c) Label the point of intersection between the two bisectors as D [1]

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13. a) Solve the equation : $5x - 3(x - 2) = 6x$

b) Express the following as a single fraction in its simplest form :

$$\frac{x+3}{2} - \frac{x}{3}$$

Ans: a) _____ [2]

b) _____ [2]

14. Simplify :

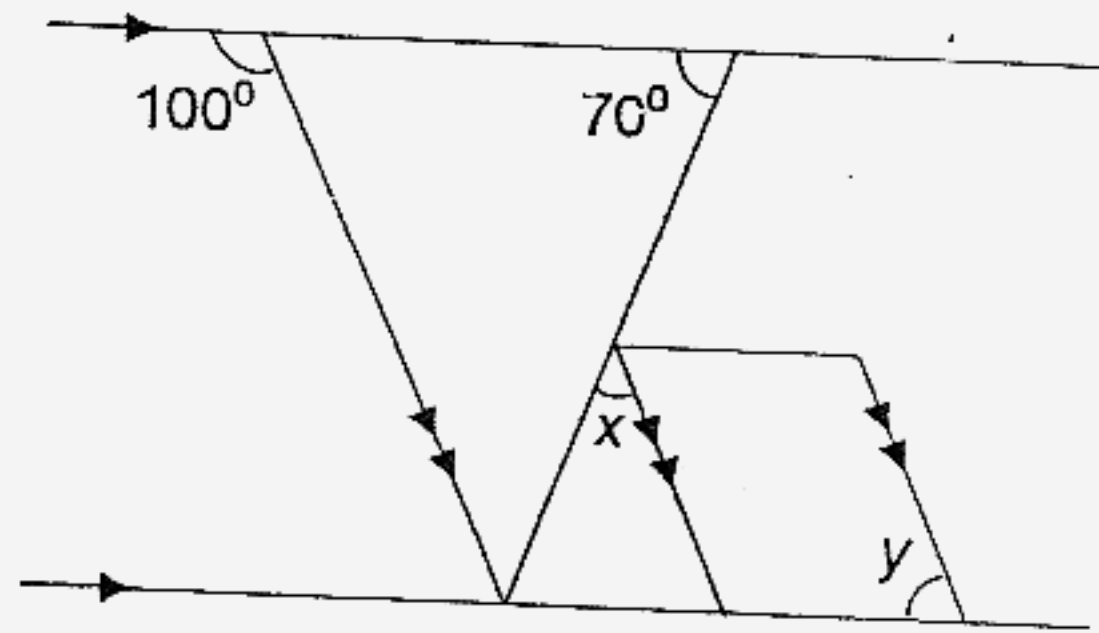
$$\frac{2}{3}(15x^2 - 6xy) + 3x(y + 5x)$$

Ans: _____ [2]

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15. Study the figure shown. Find the value of :

- a) x and
b) y



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Ans: a) _____ [2]

b) _____ [2]

All reasons given [1]

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1. a) Evaluate the following using a calculator and give your answer as a fraction.

$$\frac{49 \div [17 - (4 \times 5 - 10)] + 2 \times 7}{3\frac{1}{7} \times \left(1\frac{3}{4}\right)^2}$$

Ans : _____ [1]

- b) Evaluate the following using a calculator and give your answer correct to 2 significant figures.

$$\sqrt[3]{-13\frac{6}{19}} \div \left(15.46 - 7.345 \times 3\frac{77}{99}\right)$$

Ans : _____ [2]

2. A wire circle of diameter 35 cm is bent to form a rectangle whose length is twice its width. Find the area of the rectangle to 3 significant figures. (Take $\pi = 3.142$) [4]

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3. a) A car consumes petrol at an average rate of 7.4 litres per 100 kilometres. The car owner spends \$20 on petrol costing 80¢ per litre. Calculate, correct to the nearest kilometre, the maximum distance his car can travel on this amount of petrol.

[3]

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- b) There is a 100 m travelator which can transport a person standing still from one end to the other end in 2 minutes. If the travelator is not working, Tommy can walk from one end to the other end of the 100 m travelator in 3 minutes. How long will it take Tommy to walk from one end to the other end of the travelator when it is working?

[3]

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4. a) An ornament costs \$36 to make. This cost is divided into 3 parts, which is, materials, wages and overheads in the ratio 3 : 4 : 5. Calculate the cost of materials used in making one ornament. [1]

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- b) In a particular year, the cost of materials used is doubled, the wages are increased by 30 % but the overheads remain the same. Calculate the total percentage increase in the cost of making an ornament for that year. [4]

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5. The pattern below is made up of matchsticks. Study the pattern and complete the table by finding the values of a, b, c, and d.



Fig. 1



Fig. 2

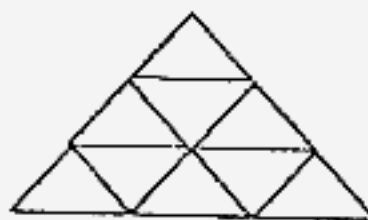


Fig. 3

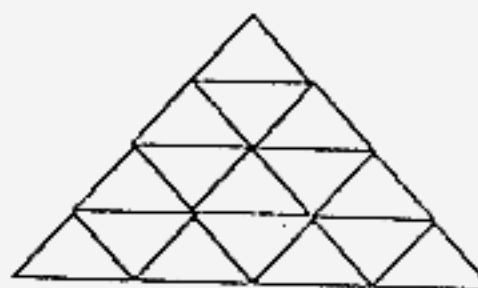


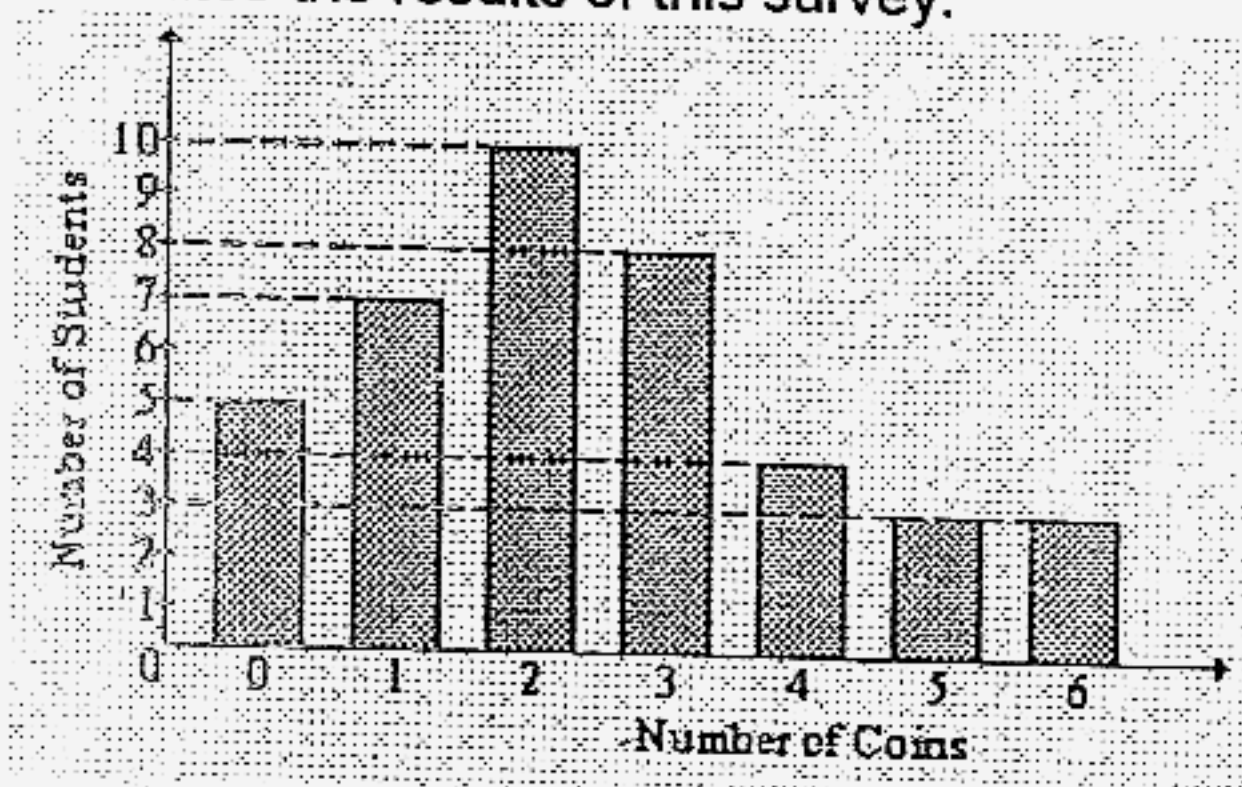
Fig. 4

Figure Number	1	2	3	4	12	a
Number of triangles	1	4	9	16	b	400
Number of matchsticks	3×1 =3	3×3 =9	3×6 =18	3×10 =30	c	d

a is _____, b is _____, c is _____ and d is _____ [4]

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6. a) Each student from a Secondary Two class was asked individually how many coins they had in their pockets. The bar chart below illustrates the results of this survey.



- i) Find the number of students in the class. [1]
- ii) Find the percentage of students having 4 or more coins. [1]

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- iii) If the results of the survey is displayed on a pie chart, calculate the angle of the smallest sector.

[1]

- b) i) A footballer scored the following number of goals in eleven matches:

1, 0, 0, 2, 2, 0, 1, 2, 3, 1, 2.

Write down the modal score (that is the mode). _____

[1]

- ii) The table below shows the number of girls who ran certain distances.

Distance (km)	5	10	15	20	25
No. of girls	2	1	5	1	x

Given that median is 20 km, find the value of x.

[1]

- iii) The mean of the masses of five parcels is 400g. When another parcel is added, the mean of the masses increases by 7g. Find the mass of the sixth parcel.

[2]

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7. Construct and label a quadrilateral ABCD. The measurements are as follow :
AB = 8 cm, $\angle DAB = 55^\circ$, AD = 4.5 cm, AC = 9 cm, BC = 6 cm.
Measure and write down the length BD and $\angle ABC$.

[5]

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8. a) Sandra, Kelly and Linda sat for a Science Test. Sandra scored 17 marks more than Linda but 31 marks less than Kelly. Given that Sandra scores x marks and Kelly's marks are twice Linda's marks,

- i) Write down an equation in terms of x .
ii) Solve the equation and find Linda's marks.

[2]

[2]

b) Solve : $\frac{5}{x} - \frac{1}{3x} = \frac{3}{2x-1}$

[3]

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9. a) Lamp posts, dust bins and benches are placed at intervals of 70m, 56m and 84m respectively along a stretch of road 8 km long. At the start of the road, lamp post, dust bin and bench are placed together. Only when the three objects are all placed together, they are painted blue.
- i) How far away from the start of the road are the second set of the 3 blue objects spotted? [2]
- ii) How many lamp posts are painted blue along the road? [2]
- iii) How many lamp posts are there along the road? [1]

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Use

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Use

- b) A soccer match was held at the National Stadium. The admission ticket for a gallery seat was \$6 and that for a grand stand seat was 1.5 times that of a gallery seat. If the number of people who bought a grand stand seat is $\frac{3}{5}$ that of the gallery seat, find the total amount of money collected from ticket sales if the total number of people attended was 47 960.

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[4]

End-of-Paper

Sec 1 Express Maths EOY Exam 2006 Part 1

1. a) 943
b) 940
c) 942.71
2. 0.1, 0.101, 11%, $\frac{1}{9}$
3. a) 15, 21
b) $\frac{16}{125}$, $\frac{25}{216}$
4. 51
5. b) $d = 14$
c) $d = 2s + 2 = 2(s + 1)$
6. a) 25
b) 30
c) 28%
7. a) $2^2 \times 3 \times 7$
b) 14
8. 2.25
9. a) 15° , 24 sides
b) 18 sides
10. 3 : 20
11. 7 days
12. On drawing
13. a) $x = 1\frac{1}{2}$
b) $x = \frac{x+9}{6}$
14. $x(25x - y)$

15. a) $x = 30^\circ$
b) $y = 80^\circ$

16. a) 77 cm^2
b) 58 cm

Sec 1 Express Maths EOY Exam 2006 Part 2

1. a) $2\frac{2}{11}$
b) 0.19

2. 612 cm^2

3. a) 337 km
b) $1.2 \text{ mins or } 72 \text{ secs.}$

4. a) $\$9$
b) $\$35\%$

5. $a = 20$
 $b = 144$
 $c = 3 \times 78 = 234$
 $d = 3 \times 210 = 630$

6. ai) 40
ii) 25%
iii) 27°
bi) 2
ii) 8
iii) 442 kg

7 $BD = 6.5 \text{ cm} \pm 0.1 \text{ cm}$
 $\angle ABC = 79^\circ \pm 1^\circ$

8. ai) $x + 31 = 2(x - 17)$
ii) 48 marks
b) $x = \frac{14}{19}$

9. ai) 840 m
ii) 10
iii) 115
b) $\$341715$