



Index no.	
Total	/ 50

Anglo-Chinese School (Barker Road)

END-OF-YEAR EXAMINATION 2006

SECONDARY ONE (EXPRESS)

MATHEMATICS

(PART 1)

TIME: 1 Hour

INSTRUCTIONS TO CANDIDATES

Write **index number** in the box above.

Answer **all** the questions in the space provided on the question paper.

All workings must be clearly shown.

The omission of essential steps will result in loss of marks.

The use of calculators **IS** allowed.

The intended marks for each question or part of questions are given in brackets [] at the end of the question.

Give **non-exact** numerical answers correct to 3 significant figures or 1 decimal place in the case of angles in degrees, unless a different level of accuracy is specified in the question.

This question paper consists of 9 printed pages including this page

1. (a) Evaluate $\frac{3.6 - 1.55^2}{\sqrt[3]{468.1 - 2.2}}$, giving your answer correct to 3 decimal places.
- (b) Round off 2870.594
- (i) to one significant figure
 - (ii) to the nearest 10

Ans: (a) _____ [2]

(bi) _____ [1]

(bii) _____ [1]

-
2. Find the least number of people that can be divided into groups of 30, 25 and 10 exactly.

Ans: _____ [2]

3. The diagram below shows a sequence of figures with different numbers of dots. Figure 1 is an equilateral triangle. The rest of the figures are formed by placing two or more of figure 1 side by side.

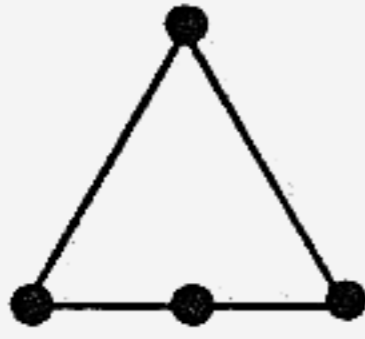


Figure 1

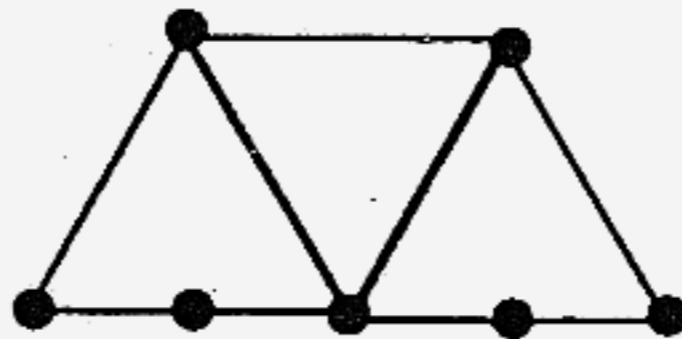


Figure 2

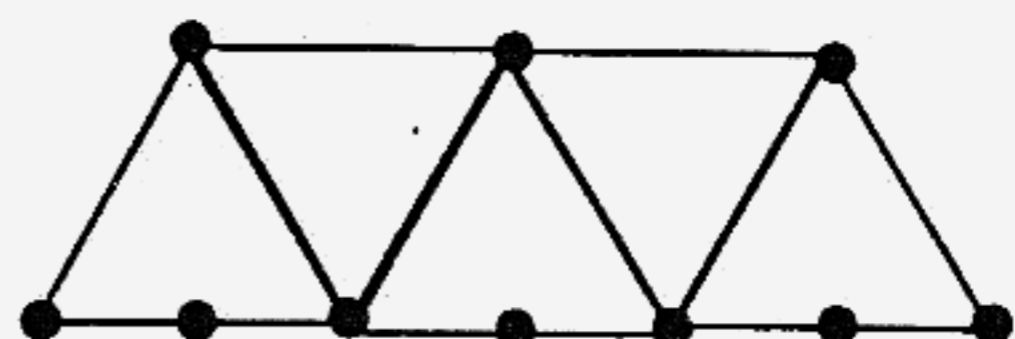


Figure 3

The total number of dots and the area for each figure are tabulated in the table below.

Figure	1	2	3
Total number of dots	4	7	10
Area (unit ²)	1	3	5

- (i) State the figure which has a total of 19 dots.
- (ii) Find the number of dots in figure 15.
- (iii) Find the area of figure 25.

Ans: (i) _____ [1]

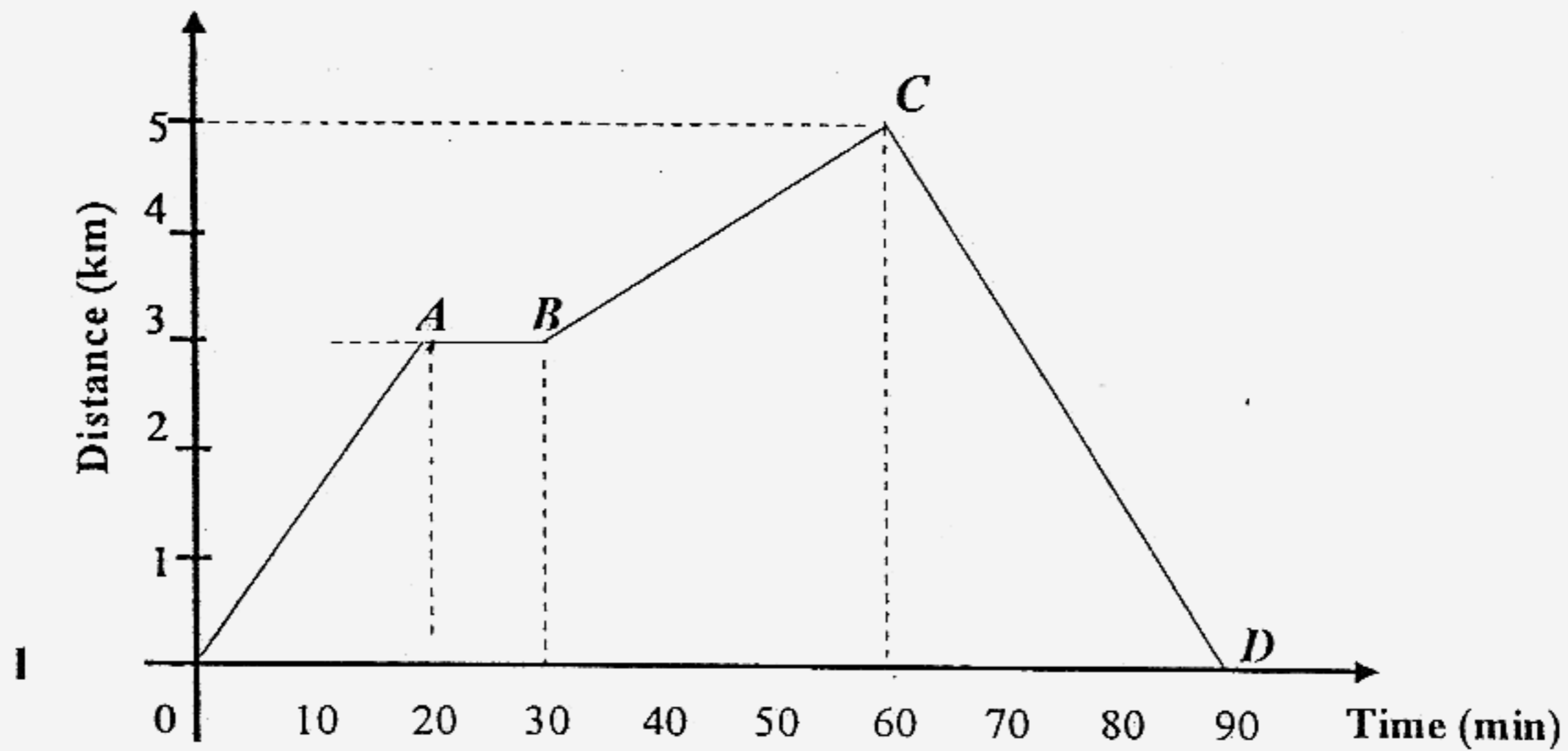
(ii) _____ [1]

(iii) _____ [1]

4. Anthony, Keith and Max shared a sum of money in the ratio $5 : 1\frac{2}{3} : 2\frac{1}{2}$. If Max has \$22 more than Keith, calculate the amount of money Anthony has.

Ans: _____ [3]

7. The following diagram shows the travel graph of a jogger.



- (a) Find the distance covered by the jogger.
 (b) How long did the jogger take to reach his destination? (before he returns back to starting point)
 (c) Describe what the jogger is doing during the stage AB represented on the graph.

Ans: (a) _____ [1]

(b) _____ [1]

(c) _____

[1]

8. The owner of a shop makes a 45% profit for every cake he sells. If he made a profit of \$36 when he sold a 2.5kg cake. Calculate the selling price of 1 kg of the cake.

Ans: _____ [3]

9. (a) Subtract $3a^3 + a^2 - 4a + 5$ from $a^3 - 2a^2 + 9a$.

(b) Express $\frac{2(2x+y)}{3} - \frac{x-2y}{5}$ as a single fraction in its simplest form.

Ans: (a) _____ [2]

(b) _____ [3]

10. Solve the following equations:

(a) $3x - 4 = x + 10$

(b) $6y - (2 - 4y) = 4(2y + 1) - 2y$

Ans: (a) _____ [2]

(b) _____ [3]

11. Simplify

(i) $\frac{2xy}{3} \times \frac{5yz}{4} \div \frac{10xyz}{5}$

(ii) $2a - [5a - 7b - 8(9a - 2b)]$

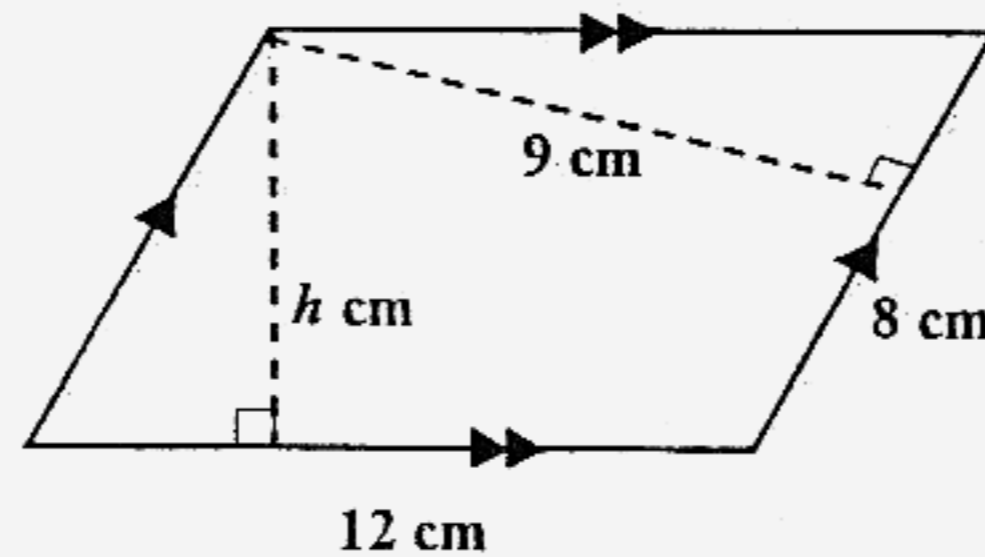
Ans: (i) _____ [2]

(ii) _____ [2]

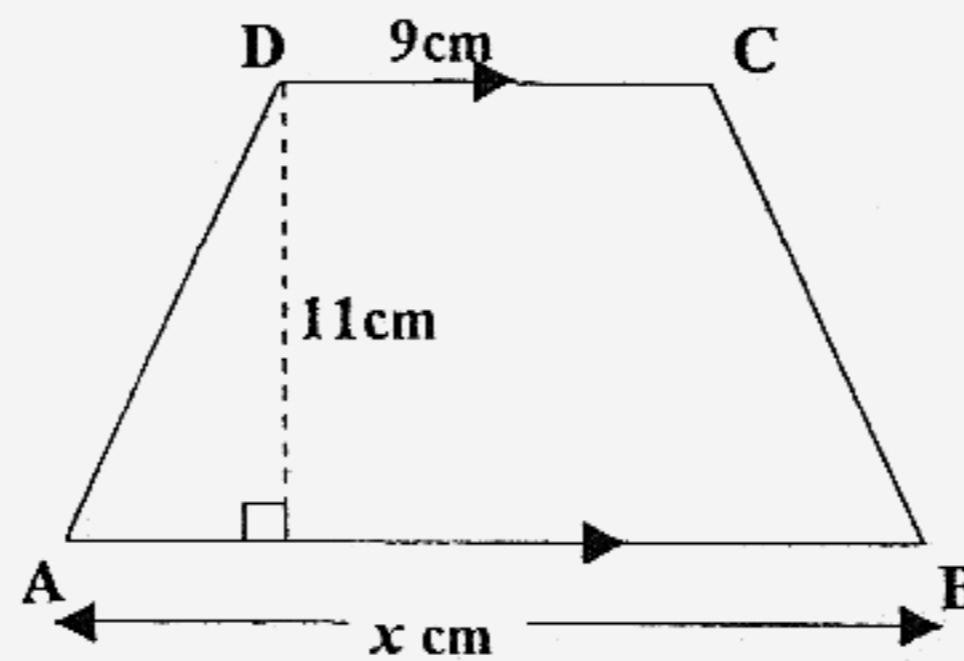
12. (a) In the diagram, find

(i) the area of the parallelogram

(ii) the value of h .



(b) In the diagram, if the area of the trapezium ABCD is 121 cm^2 , find the value of x .



Ans: (a)(i) _____ [1]

(ii) _____ [1]

(b) _____ [2]

13. The line graph shows the profit of XYZ Company from 1996 to 2000. Use it to answer the questions that follow.

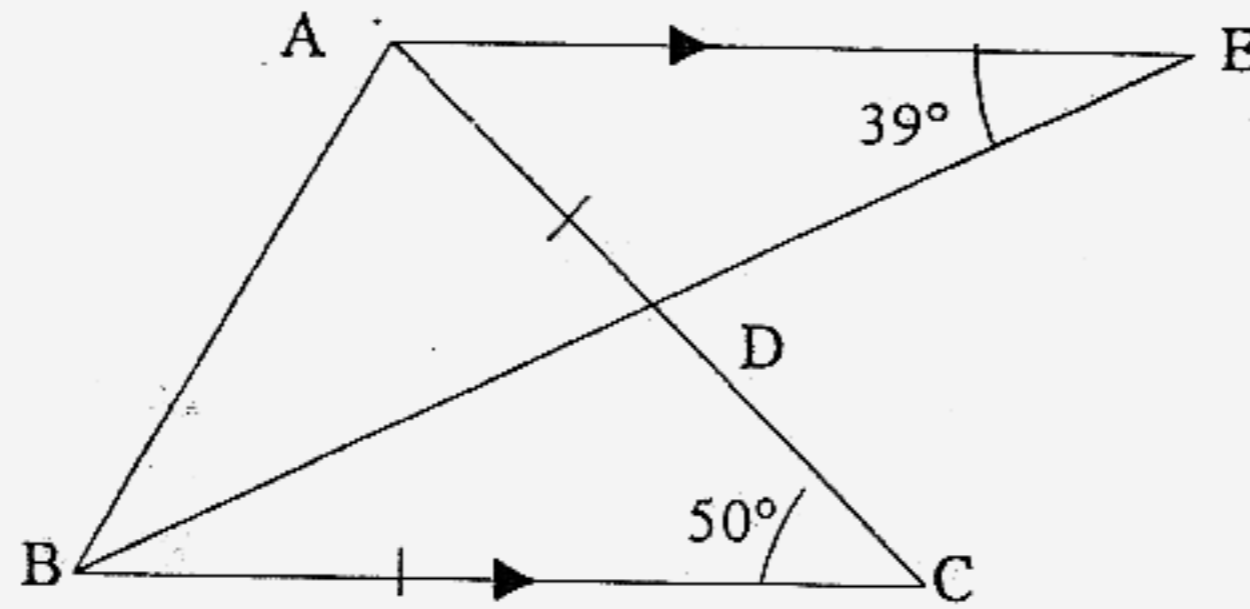
- (a) What is the company's total profit over the five years?
- (b) There was a drop in profit given that period of five years.
- In which year was there a drop in profit?
 - What is the percentage decrease in profit in that year compared to the previous year?

Ans: (a) _____ [2]

(bi) _____ [1]

(bii) _____ [1]

14.



In the diagram above, BDE is a straight line and AE is parallel to BC. Triangle ABC is an isosceles triangle where $AC = BC$, $\angle AEB = 39^\circ$ and $\angle ACB = 50^\circ$. Calculate

- (a) $\angle EAD$,
- (b) $\angle BAC$,
- (c) $\angle EDC$,
- (d) $\angle ABE$.

Ans: (a) _____ [1]

(b) _____ [1]

(c) _____ [2]

(d) _____ [2]

End-of-Paper

End-Of-Year Examinations 2006



Anglo-Chinese School (Barker Road)

END-OF-YEAR EXAMINATION 2006

SECONDARY ONE EXPRESS

MATHEMATICS

PART 2

TIME: 1 Hour 30 minutes

INSTRUCTIONS TO CANDIDATES

Answer **all** questions.

Start each question on a fresh page.

Show your answers and working on the writing papers provided.

Omission of essential workings will result in loss of marks.

INFORMATION FOR CANDIDATES

The number of marks is given in [] at the end of each question or part question.

The total of the marks for this paper is 50.

The use of an electronic calculator is expected, where appropriate.

Give non-exact numerical answers correct to 3 significant figures or 1 decimal place in the case of angles in degrees, unless a different level of accuracy is specified in the question.

This question paper consists of 4 printed pages including this page

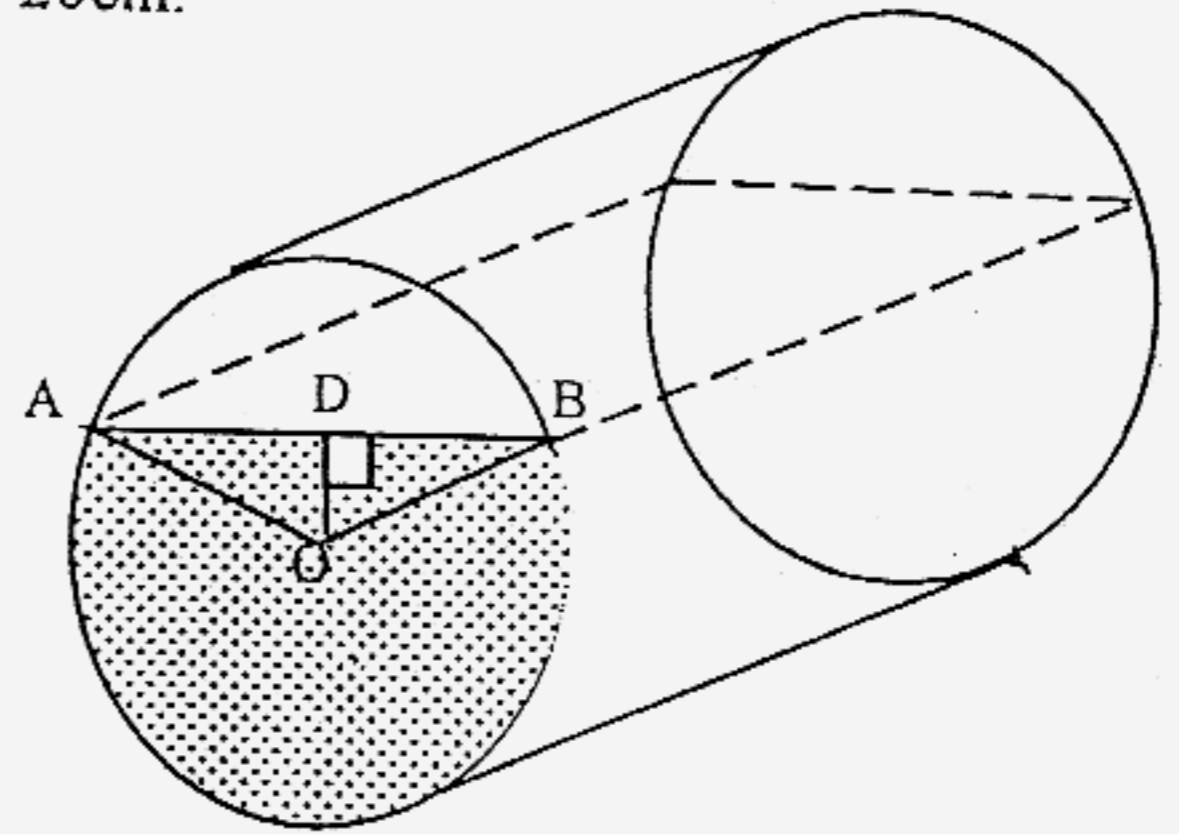
1. The cash price of a car is \$71,000. It can also be purchased based on the following hire purchase terms: \$5,000 deposit, balance at 2% per annum simple interest for 7 years, paid by monthly installments.

Calculate

- (a) the monthly installment, to the nearest dollar. [3]
- (b) the percentage difference between the hire purchase price and the cash price. Express your answer to 2 decimal places. [2]

2. The diagram below shows a cylindrical pipe filled with water. Given that OA and OB are the radii of the shaded circle and $OA = OB = 5\text{cm}$, OD is 2.5cm, $AB = 8.7\text{cm}$, $\hat{AOB} = 120^\circ$ and the length of the pipe is 20cm.

- a) Find the area of $\triangle ABO$ [1]
- b) Express the reflex angle \hat{AOB} as a fraction of the full circle in the simplest form [1]
- c) Using your answer in part (b), find the area of the shaded part, giving your answer correct to two decimal places. [2]
- d) Find the volume of water, giving your answer correct to two decimal places. [2]
- (Take $\pi = \frac{22}{7}$)



3. (a) If 6 men can paint a building in 21 days, how many days would it take 14 men to paint a similar building? (assuming that the men work at the same rate) [2]
- (b) The cost of Book A to Book B are in the ratio 5 : 6. The cost of Book B to Book C are in the ratio 2 : 3. Express the cost of Book A, Book B and Book C in the ratio A : B : C in the simplest form. [2]
- (c) 740 people signed up for a contest. $\frac{1}{4}$ of these people signed up on the first day of promotion. $\frac{2}{3}$ of the remainder signed up on the last day of promotion. How many people signed up on the last day of promotion? [2]

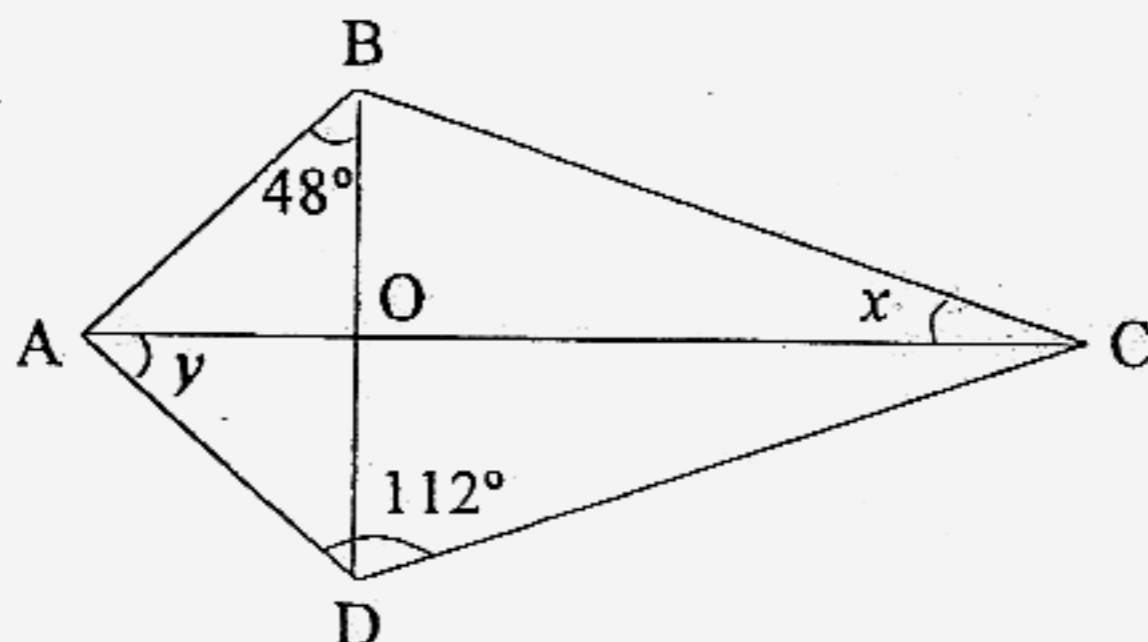
4. (a) The table shows the telephone rates for overseas calls.

Country	First block of 3 mins	Subsequent block of 1 min
Hong Kong	\$10.50	\$3.25
America	\$15.80	\$4.50

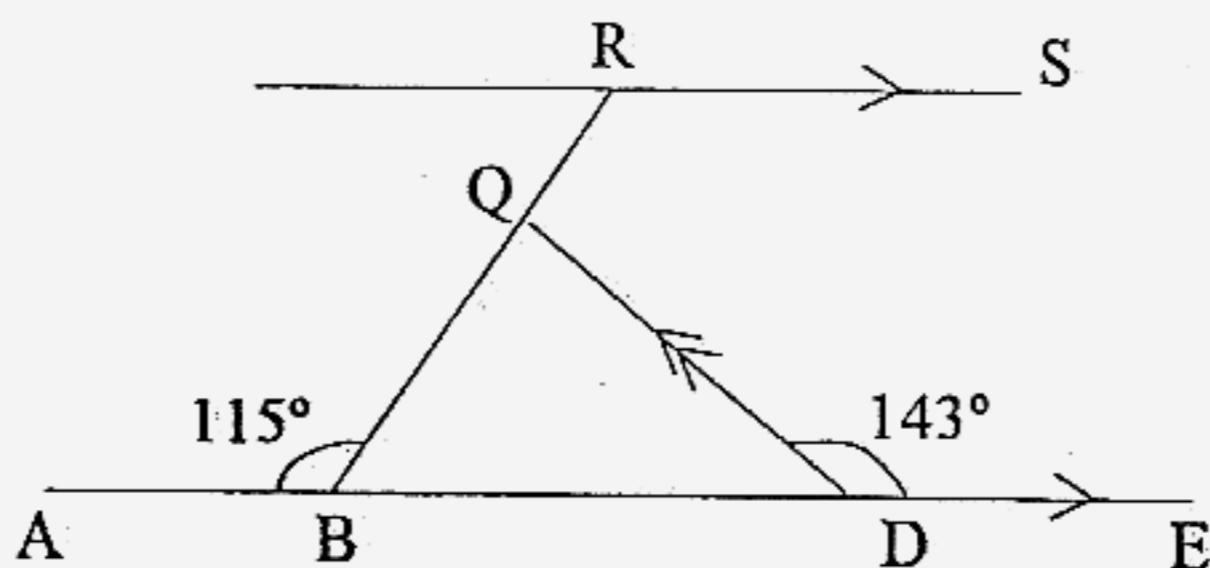
Tom made a telephone call to Hong Kong for 6 mins and another call to America for 5 mins. How much would he have to pay for the two overseas calls? [3]

- (b) Jerry's monthly salary consists of \$850 plus a commission of 15% on the total sales made.
- (i) If his total sales for the month of March is \$25 000, what is his income for the month of March? [1]
- (ii) If his income for the month of May is \$7 300, what is the total sales he made for the month of May? [2]

5. (a) The diagram below shows a kite ABCD. Find the values of x and y . [4]



- (b) In the diagram below, AE is parallel to RS, $\angle QDE = 143^\circ$ and $\angle RBA = 115^\circ$. Calculate $\angle DQR$, stating your reasons clearly. [3]



6. (a) A stretch of road, 2 km long, is represented by 2 cm on a map.
- (i) Express this in the ratio $1 : n$, where n is a positive integer. [1]
- Another stretch of road is represented by 10.5 cm on the same map.
- (ii) What is the actual length of this road in km? [2]
- (iii) How long, in minutes, will a lorry traveling at 50 km/h, take to travel from one end of the road to the other? [2]

- (b) The marks of 30 students in a mathematics test are as follows:

37	48	40	50	34	43	25	49	35	36
24	30	38	41	39	49	40	20	35	25
35	50	42	34	35	30	22	33	37	28

Draw a stem and leaf diagram. [2]

7. (a) Mrs Morgan made x butter cookies and twice as many chocolate cookies as butter cookies for a party. At the party, $\frac{3}{4}$ of the butter cookies and 300 chocolate cookies were eaten.
- (i) Write down and simplify an expression in x for the total number of cookies left. [2]
- (ii) If the total number of cookies left was 69, find the original number of chocolate cookies made. [3]
- (b) If David sold a painting at \$420, he would make a loss of 30%. How much must he sell to make a 20% profit? [2]

-
- 8 (a) Construct a quadrilateral ABCD such that $AB = 6$ cm, $BC = 8$ cm, $CD = 12$ cm, $DA = 10$ cm and diagonal $AC = 10$ cm. [2]
- (b) On the same diagram, construct
- (i) the angle bisector of $\angle ABC$ and label it (i), [1]
- (ii) the perpendicular bisector of AD and label it (ii), [1]
- (c) Mark the point X where the two bisectors meet.
Measure and write down $\angle CXD$. [2]

End-of-Paper

Sec 1 Express End-Of-Year Examination 2006 Mathematics Part 1 Answers

- Q1 (a) 0.154
(b) (i) 3 000
(b) (ii) 2 870
- Q2 150
- Q3 (i) Figure 6
(ii) 46
(iii) 49 units²
- Q4 \$132
- Q5 (ii) 108°
- Q6 384 cm²
- Q7 (a) 10 km
(b) 60 mins
(c) The jogger was resting for 10 mins
- Q8 \$46.40
- Q9 (a) $-2a^3 - 3a^2 + 13a - 5$
(b) $\frac{17x + 16y}{15}$
- Q10 (a) $x = 7$
(b) $y = 1\frac{1}{2}$
- Q11 (i) $\frac{5y}{12}$
(ii) $69a - 9b$
- Q12 (a) (i) 72 cm²
(a) (ii) $h = 6\text{cm}$
(b) $x = 13\text{ cm}$
- Q13 (a) \$31 million
(b) (i) 1999
(b) (ii) 33.3 %
- Q14 (a) 50°
(b) 65°

- (c) 89°
- (d) 26°

SECONDARY ONE EXPRESS END-OF-YEAR 2006 MATHEMATICS PART 2
ANSWERS

- Q1 (a) \$896 (to the nearest dollar)
 (b) 13.01% (to two decimal places)
- Q2 (a) 10.875 cm^2
 (b) $\frac{2}{3}$
 (c) 63.26 (to two decimal places)
 (d) 1265.12 cm^3 (to two decimal places)
- Q3 (a) 9 days
 (b) Cost of Book A : Book B : Book C = 5 : 6 : 9
 (c) 370 people
- Q4 (a) \$45.05
 (b) (i) \$4 600
 (b) (ii) \$43 000
- Q5 (a) $x = 26^\circ, y = 42^\circ$
 (b) $\angle DQR = 102^\circ$
- Q6 (a) (i) 1 : 100 000
 (a) (ii) 10.5 km
 (a) (iii) 12.6 mins
 (b) 5 00
 4 00123899
 3 00344555567789
 2 024558
- Q7 (a) (i) $2\frac{1}{4}x - 300$
 (a) (ii) 328
 (b) \$720
- Q8 (c) $\angle CXD = 146^\circ$