

**2001
SCHOOL
CERTIFICATE
TEST**

SAMPLE PAPER

**MATHEMATICS
SECTION 2
PART A**

**QUESTION/
ANSWER
BOOKLET**

Directions to students

1. You are allowed 90 minutes to answer **ALL** of Section 2.

You should allow about 60 minutes to answer Part A and 30 minutes to answer Part B.

2. Section 2 has **TWO** parts.
Part A: Questions 26-75 (50 marks)
Part B: Questions 76-80 (25 marks)

3. Attempt **ALL** questions in Section 2.

4. Calculators **MAY** be used in Section 2.

5. The Sample Questions and Formulae Booklet may be used in Section 2.

6. Complete your answers to Questions 26 to 72 on the separate Student Answer Sheet provided.

Complete your answers to Questions 73, 74 and 75 on **THIS** paper.

7. Write your Student Number below.

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Directions to School or College

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26. Evaluate $\frac{(3.1)^2 - \sqrt{16}}{2.2 + 1.3}$ correct to 1 decimal place

- (A) 1.2 (B) 1.6
 (C) 3.9 (D) 9.1
-

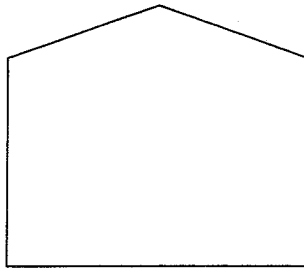
27. $6a + 2b + ab - 3a - 3b + ab =$

- (A) $4ab$ (B) $3a + b + 2ab$
 (C) $3a - b + 2ab^2$ (D) $3a - b + 2ab$
-

28. Ian used a 24 photo roll of film but found that he could take 3 extra photos. What was the extra as a percentage of the original number?

- (A) $\frac{1}{8}\%$ (B) 3%
 (C) 8% (D) 12.5%
-

29. The figure in the diagram below is a:



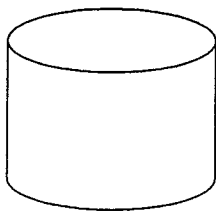
- (A) rectangle (B) trapezium
 (C) pentagon (D) hexagon
-

30. Sara tosses a pair of dice. If she gets a double she wins, otherwise she loses. Her chance of winning is:

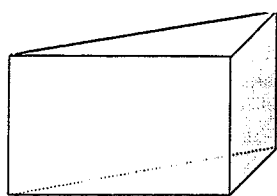
- (A) $\frac{1}{2}$ (B) $\frac{1}{3}$
 (C) $\frac{1}{6}$ (D) $\frac{1}{36}$
-

31. Which of the following figures is a triangular pyramid?

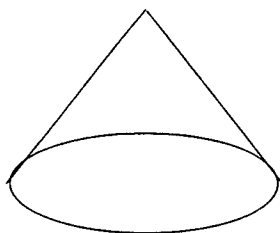
(A)



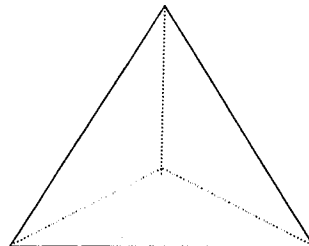
(B)



(C)



(D)



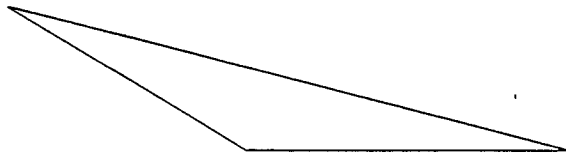
32. Michael and Margaret are making meat patties. The recipe says 1Kg of mince with 3 eggs and $1\frac{1}{2}$ teaspoons of seasoning will make 6 meat patties. They have 2 friends coming to dinner and they decide that 2 patties each will be enough for the 4 of them. This means they will need:

- (A) 0.7Kg mince, 2 eggs, 1 teaspoon seasoning
- (B) 1.3Kg mince, 4 eggs, 2 teaspoons seasoning
- (C) 1.5Kg mince, $4\frac{1}{2}$ eggs, $2\frac{1}{4}$ teaspoons seasoning
- (D) 2Kg mince, 6 eggs, 3 teaspoons seasoning

33. Jim bought a box of CDs for \$45. They had been reduced by 10%. This means they were originally marked:

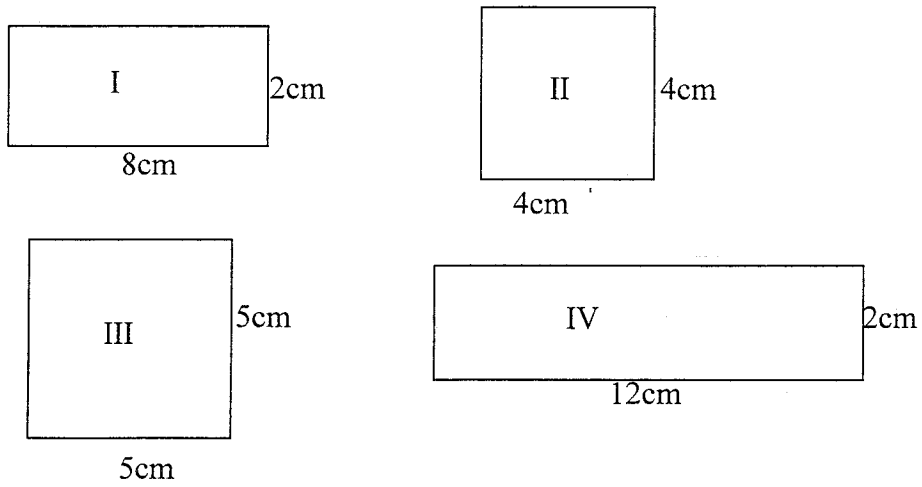
- (A) \$50
- (B) \$49.50
- (C) \$40.50
- (D) \$4.50

34. The triangle below has 3 angles. They are:



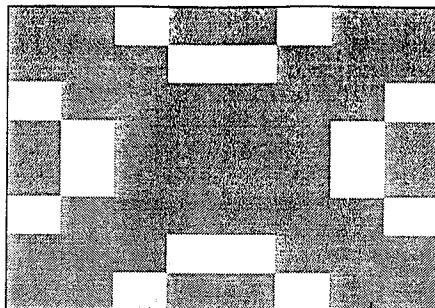
- (A) 2 acute angles and an obtuse angle
- (B) 2 acute angles and a reflex angle
- (C) 1 acute angle, an obtuse angle and a reflex angle
- (D) 1 acute angle, a right angle and an obtuse angle

35. Which 2 figures have the same perimeter?



- (A) I and II
- (B) II and III
- (C) I and III
- (D) II and IV

36.



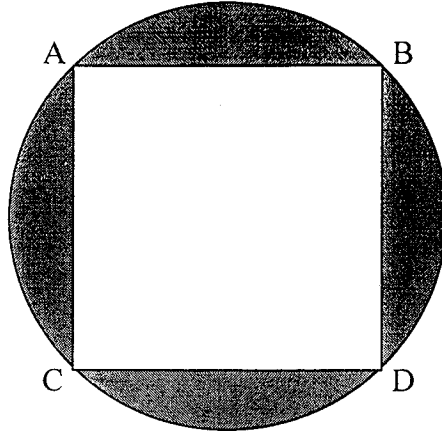
What percentage of the above figure is unshaded?

- (A) 16% (B) 20%
 (C) 25% (D) 75%

37. New Zealand is 2 hours ahead of Sydney and Perth is 2 hours behind Sydney. Jennifer flies from Perth to Sydney in 4.5 hours. She has a 30 minute stopover in Sydney and flies to New Zealand in 4.5 hours. If she left Perth at 4.37pm Monday (their time) what time would she arrive in New Zealand (NZ time)?

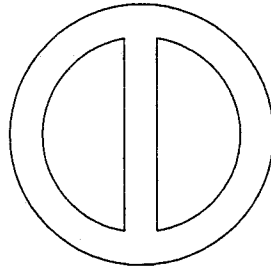
- (A) 10.07pm Monday (B) 2.07am Tuesday
 (C) 6.07am Tuesday (D) 2.07pm Tuesday

38. The diagram below represents a circular garden around a square courtyard. Measure the side of the courtyard and find the area of the garden (shaded). 1cm represents 1m.



- (A) 1.6m^2 (B) 8.6m^2
(C) 17.6m^2 (D) 82.5m^2
-

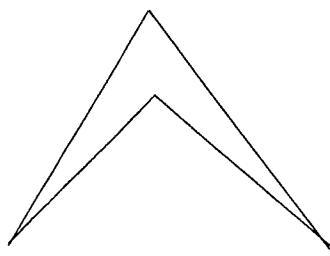
39. How many axes of symmetry has the figure below?



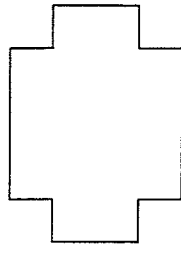
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- (A) 1 (B) 2
(C) 4 (D) endless
-

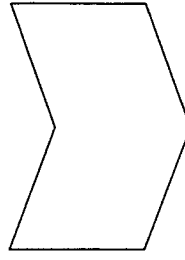
40. Which of the following figures are not quadrilaterals?



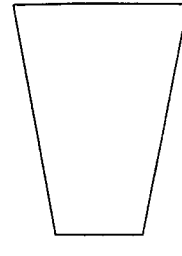
I



II



III



IV

(A) I and II

(B) II and III

(C) III and IV

(D) IV and I

41. The triangle (∇) represents the number missing from the pattern below:

63, 48, 35, ∇ , 15, 8, 3.

What is the missing number?

(A) 24

(B) 25

(C) 26

(D) 27

42. Solve the equation $7a - 14 = 35$

(A) $a = 3$

(B) $a = 7$

(C) $a = 14$

(D) $a = 56$

43. Colin's pace is 80cm. If he walks 2Km how many paces will he take?

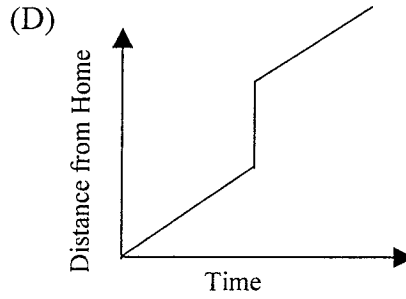
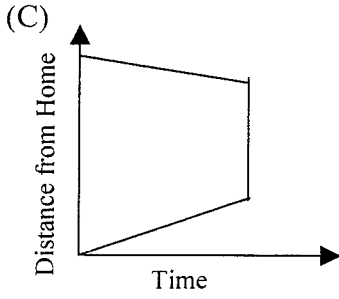
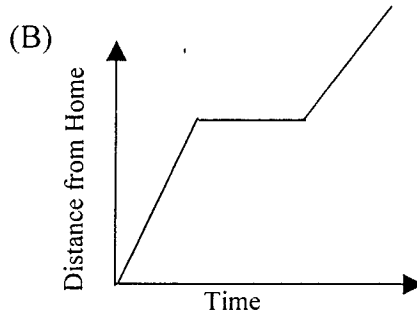
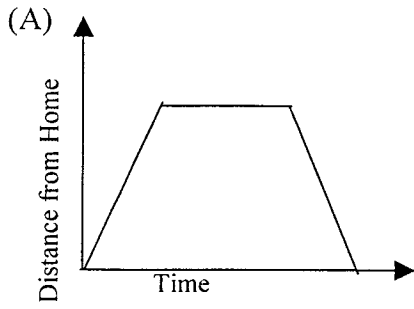
(A) 25

(B) 160

(C) 2500

(D) 160000

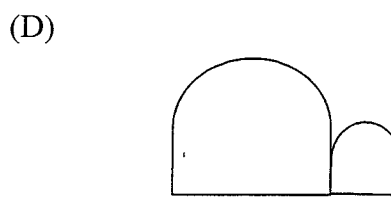
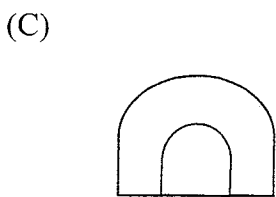
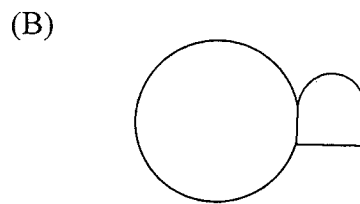
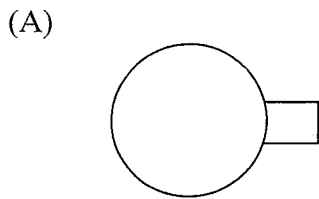
44. Sam and Sara leave home for a day at the beach. They arrive at the beach, have a swim and lunch then go home. Which graph could represent their trip?



45. Below is the drawing of an igloo.



Which of the following might be the top view?



46. The area of a trapezium can be expressed:

$$A = \frac{1}{2}(a + b)h$$

Find A if $a = 13$, $b = 17$ and $h = 14$

- | | |
|---------|-----------|
| (A) 105 | (B) 210 |
| (C) 132 | (D) 244.5 |
-

47. The approximate stopping distance (m) of a vehicle is given as $D = 2S - 60$ where D is the distance and S is the speed (km/h). On the freeway the speed is generally 110Km/h but in one area it is reduced to 90Km/h. In how much less distance will a vehicle be able to stop if it is travelling at 90km/h?

- | | |
|----------|----------|
| (A) 20m | (B) 40m |
| (C) 120m | (D) 160m |
-

48. Debra borrows \$15000 for 3 years. Interest is charged at \$75 per month. How much will she pay back in total?

- | | |
|-------------|-------------|
| (A) \$900 | (B) \$2700 |
| (C) \$15900 | (D) \$17700 |
-

49. Petrol costs 93.9 cents per litre. How much change will I get when I pay for 33.8 litres with a \$100 note (to nearest 5c)?

- | | |
|-------------|-------------|
| (A) \$30 | (B) \$31.75 |
| (C) \$68.25 | (D) \$70 |
-

50. Clare and Jim buy a house for \$140000. They pay a deposit of \$10000 which they had saved and \$14000, government grant and borrow the remainder at a flat rate of 5% per annum interest for 12 years. How much interest do they pay?
- (A) \$5800 (B) \$7000
 (C) \$69600 (D) \$84000
-

51. A cake recipe uses dried fruit : flour : brown sugar in the ratio 5 : 2 : 1. Tom is making a large cake and uses $12\frac{1}{2}$ cups of dried fruit. How much flour will he need?
- (A) $1\frac{1}{2}$ (B) $2\frac{1}{2}$
 (C) 3 (D) 5
-

52. Kim is washing up after a party. There are 45 glasses, 20 plates and 15 mugs. If 10 glasses, 5 plates and 5 mugs have already been washed and things are taken at random what is the chance that the next thing washed will be a plate?
- (A) $\frac{1}{3}$ (B) $\frac{1}{4}$
 (C) $\frac{1}{6}$ (D) $\frac{7}{12}$
-

53. Grandpa divides \$18000 between Jacob, Matthew and Luke in the ratio 4 : 3 : 2. How much will Luke receive?
- (A) \$2000 (B) \$4000
 (C) \$6000 (D) \$8000
-

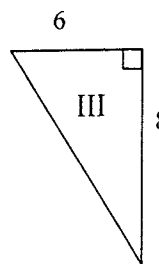
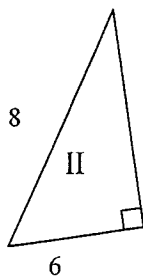
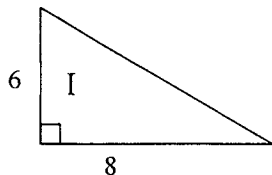
54.

x	-2	-1	0	1	2
y	2	$2\frac{1}{2}$	3	$3\frac{1}{2}$	4

What is the correct rule for this table?

- (A) $2y = x + 6$ (B) $2y = x - 6$
 (C) $y = x + 6$ (D) $y = x - 6$

55.



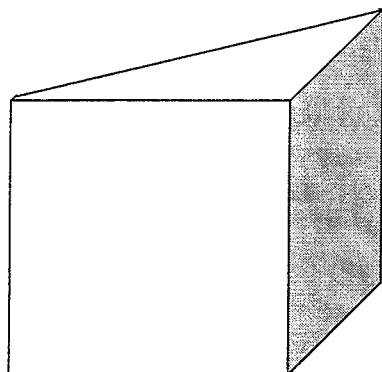
Which triangles are congruent?

- (A) I and II only (B) II and III only
 (C) I and III only (D) I, II and III

56. Gwen made 50 small cakes for the Year 10 cake stall. If 34 were sold, at \$1 each then 9 were sold when the price was reduced to 60c and the remainder were sold when they were reduced to 40c each. What was the average price of her cakes?

- (A) 17c (B) 67c
 (C) 79c (D) 84c

57. The solid shown below is a right triangular prism. If the 2 vertical faces shown are squares and the height is 12 cm what is the volume of the prism?

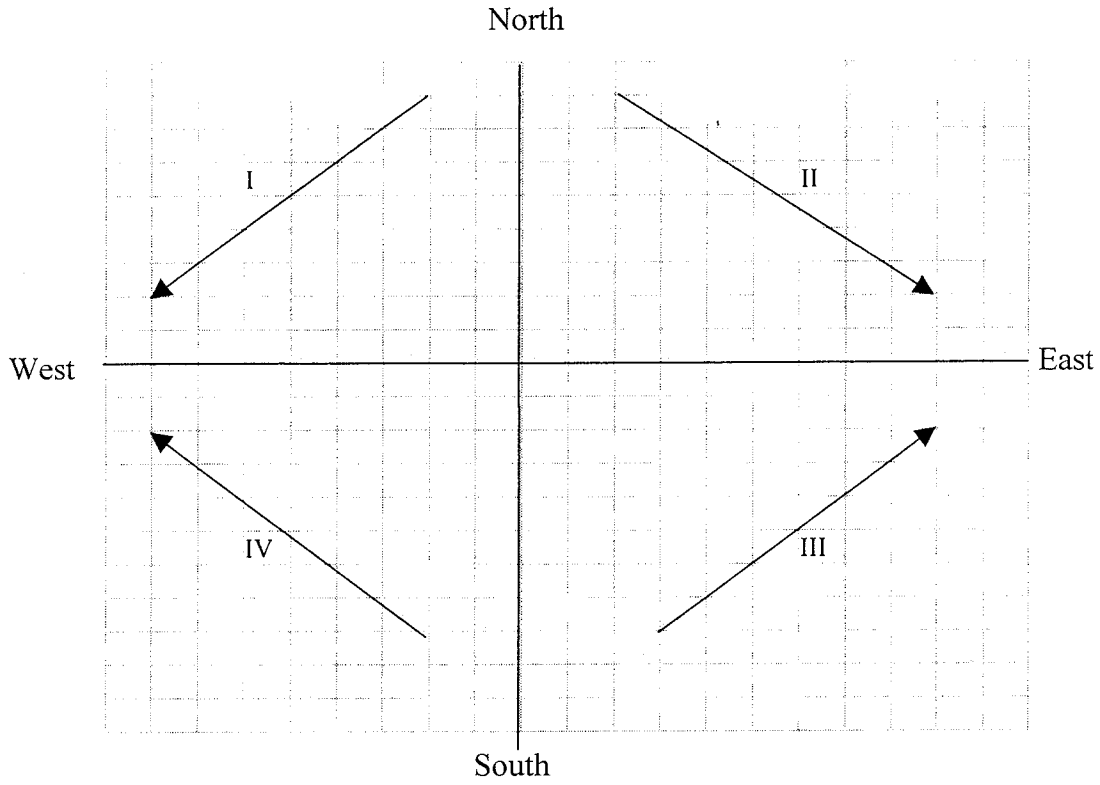


- (A) 144cm^2 (B) 864cm^2
 (C) 1728cm^2 (D) 2444cm^2

58. Brett and Betty are saving for a house. They have saved \$15000 for a deposit and that is 12% of the cost of the house. What is the cost?

- (A) \$1800
- (B) \$120000
- (C) \$125000
- (D) \$180000

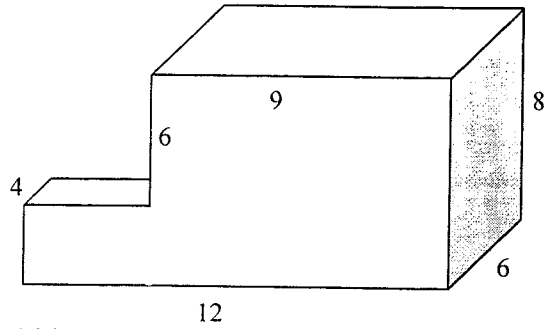
59.



Which line points south-east?

- (A) I
- (B) II
- (C) III
- (D) IV

60. Find the volume of the figure below. All figures are in cm.



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- (A) 456 (B) 504
 (C) 576 (D) 124416

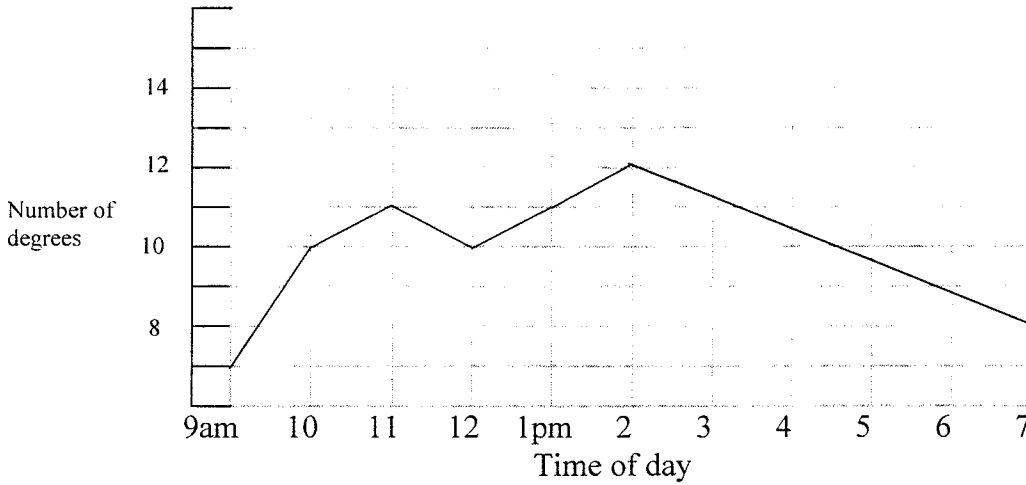
61. Which figure has exactly 2 axes of symmetry?

- (A) (B)
 (C) (D)

62. Jeremy plans to invest some money (m) over 3 years. Each year the interest will be 1% more than the previous year. The 1st year the interest rate will be 5%. Which expression below shows the total amount he will have after 3 years?

- (A) $m + 5 + 6 + 7$ (B) $m + 0.05 + 0.06 + 0.07$
 (C) $19m$ (D) $1.18m$

63. Sally recorded the temperature each hour from 9am to 7pm and drew a graph. Which of the statements below is most likely to be correct?



- (A) The temperature rose steadily for 2 hours after 10 o'clock.
 - (B) The temperature fell steadily for 2 hours after 12 o'clock.
 - (C) The temperature fell steadily for 2 hours after 2 o'clock.
 - (D) The temperature rose steadily for 2 hours after 4 o'clock.
-
64. Soseh draws a plan where 3cm represents 24m. What is the scale as a ratio?

- (A) 1:24
 - (B) 1:800
 - (C) 24:1
 - (D) 800:1
-

65. Ahmet draws an octagonal prism. He counts the faces. There are

- (A) 8
 - (B) 9
 - (C) 10
 - (D) 16
-

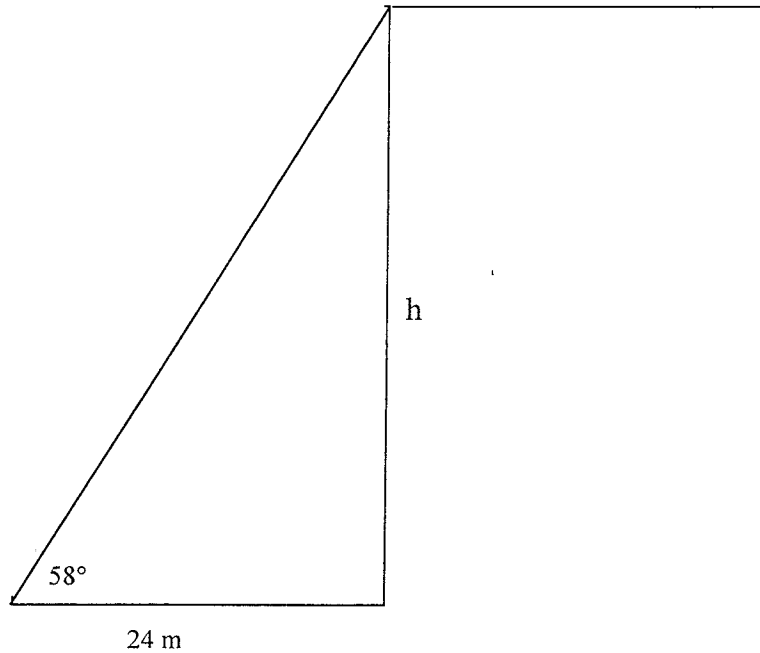
66. Thomas works 7 hours at \$12.50 per hour then 2 hours at time and a half and $3\frac{1}{2}$ hours at double time. This means he will earn:

- (A) \$97.50 (B) \$156.25
 (C) \$212.50 (D) \$468.75

67. A cube has a surface area of 96 cm^2 . If each edge is doubled in length what will be the new surface area?

- (A) 192 cm^2 (B) 384 cm^2
 (C) 729 cm^2 (D) 768 cm^2

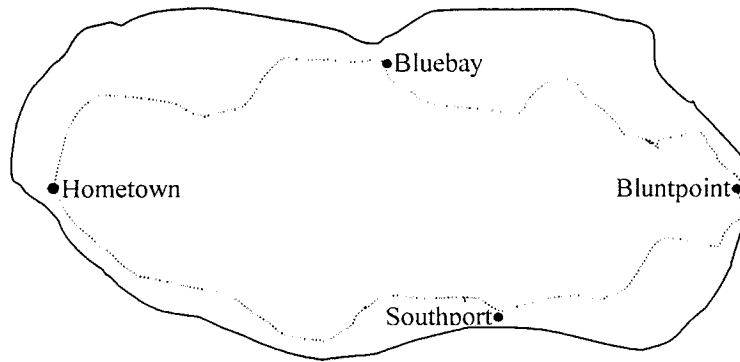
68.



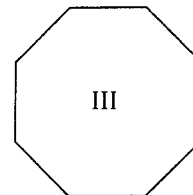
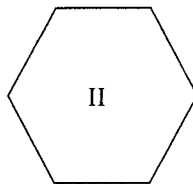
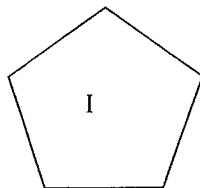
Damien found the angle from the ground to the top of a building was 58° when he was 24 m from it. He made the scale drawing shown above. What is the height h of the building to the nearest metre?

- (A) 15m (B) 30m
 (C) 38m (D) 77m

69. The following map with a scale 1 cm to 1 Km shows a bicycle ride by Arthur (dotted line), starting and ending at Hometown. Which of the statements below is most likely to be correct?



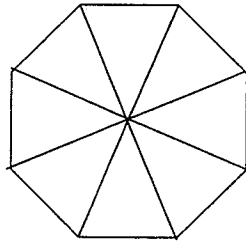
- (A) He rode 9 cm to get to Bluntpoint.
 - (B) He rode 11 cm to get to Bluntpoint.
 - (C) He rode 9 Km to get to Bluntpoint.
 - (D) He rode 11 Km to get to Bluntpoint.
-
70. The following plane figures are to be rotated 90° . Which figure/s will still look the same



- (A) I and II
 - (B) II and III
 - (C) II
 - (D) III
-
71. The formula for the total number of degrees (D) in the angles of a polygon with s sides is given as:
- (A) $D = (s - 2) \times 180$
 - (B) $D = (s + 2) \times 180$
 - (C) $D = (s - 2) \div 180$
 - (D) $D = (s + 2) \div 180$

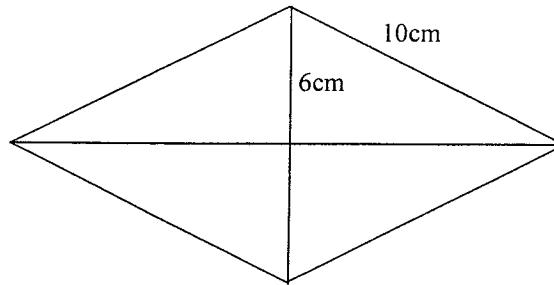
72. Simon pays 30c for every \$1 he earns above \$5000. If he earns \$25350 how much tax will he pay?
- (A) \$6105 (B) \$7605
(C) \$610500 (D) \$760500
-

73. The figure below is a regular octagon. What would be the size of each angle at the centre?



- (A) 22.5° (B) 30°
(C) 45° (D) 60°
-

74. Calculate the area of the rhombus to the nearest cm², given 1/2 a diagonal is 6cm and a side is 10cm.



- (A) 60cm² (B) 96cm²
(C) 120cm² (D) 192cm²

75. Given the times
- (I) 1927 in 24 hour time
 - (II) 7.33
 - (III) 27 to 7
 - (IV) 27 past 7

Which times could represent the same time?

- (A) I and II
- (B) II and III
- (C) III and IV
- (D) I and IV

End of Part A

Continue on to Section 2 Part B