

2005

140 copies

1¼ HOURS

Answer ALL questions. All necessary working MUST be shown.

1. (a) What is the value of 4 in 14795?
(b) Convert 11001_2 to base 10
2. (a) Add together 10.79, 8.43 and 12.5. Give your answer to 3 significant figures.
(b) Multiply 23.1 by 2.5. Give your answers to one decimal place.
3. (a) (i) Express 24, 60 and 96 as products of their prime factors.
(ii) Hence, find the HCF of 24, 60 and 96.

(b) What is the smallest number of sweets that can be shared exactly between 5, 12 or 15 students?
4. If $P = \{\text{factors of 15}\}$ and $Q = \{\text{factors of 18}\}$:
(i) List the members of P and Q.
(ii) Draw a Venn diagram showing the elements of P and Q.
(iii) Find $n(P \cap Q)$.
5. (a) Express $\frac{35}{40}$ as a decimal.
(b) What percentage of the letters in the word PERCENTAGE are vowels?
6. Two friends, Natasha and Tricia share a sum of money in the ratio 4:9 respectively. If Natasha's share is \$560, find the total sum of money shared.
7. Solve the following equations for x:
(a) $12x = 324$
(b) $6x - 13 = 8$
(c) $4 + 2x = 11$
8. A stadium has a section 15m long, 12m wide and 3m high. How many people can it hold if each person requires 6m^3 of air space?

9. If $x = -2$, $y = 3$ and $z = 4$, find the values of the following expressions:

(a) $x - 3y$

(b) $3y + xz$

(c) $16 \div x$

10. How long will it take to travel 96km at a speed of 24km/h?

11. Simplify the following:

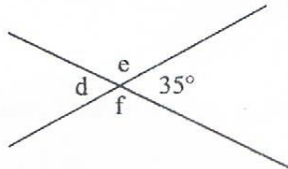
(i) $169x \div 13$

(ii) $2p + q - 3p + 5q$

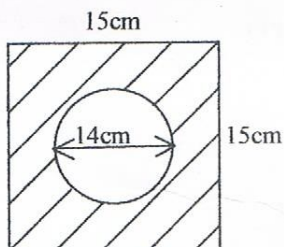
(iii) $3x \times 20xy$

12. The area of the end face of a beam is 33cm^2 . Find the volume of a 7m length of the beam in cm^3 .

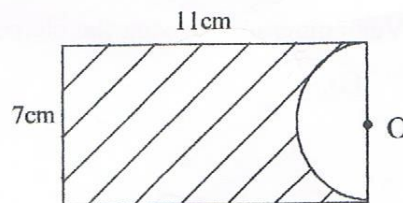
13. Find the sizes of angles d , e and f in the diagram below.



14. Find the area of the shaded region in the following diagram. Use $\frac{22}{7}$ for π .



(a)



where O is the centre of the semicircle

(b)