SECOND FORMS **MATHEMATICS** **K. BOWEN**

2004 **140 COPIES**

1 HOUR 30 MINUTES

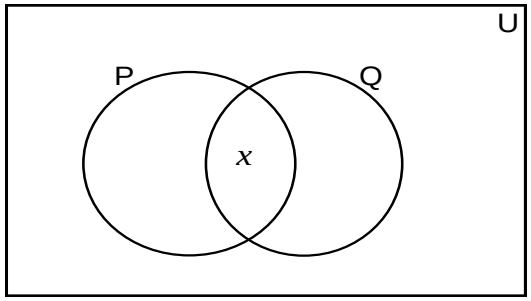
Answer **ALL** questions. All necessary working **MUST** be shown.

1. Write the following numbers in standard form:
   (a) 12 149 (b) 0.00479 (c) 224.09

2. Simplify the following
   (a) $2x^5 \times 3x^3$ (b) $2^5 \times 2^{-3}$ (c) $\dfrac{5^4 \times 5^3}{5^6}$

3. Find the exact value of
   (a) 2.39×6.5 (b) $\dfrac{6.78}{1.13}$ (c) $7\frac{3}{4} - 4\frac{1}{8}$

4.



In the diagram above, n(U) = 50, n(P) = 27, n(Q) = 31, n(P $\cup$ Q)′ = 4 and n(P $\cap$ Q) = *x*. Calculate: (a) *x*
(b) n(P $\cap$ Q')
(c) n(Q $\cap$ P′)

5. (a) Solve the following
   (i). $7x - 2(3 + x) = 19$
   (ii). $5(3x - 2) > 3(4x - 1)$

   (b) Simplify the following
   (i). $\dfrac{x+5}{3} - \dfrac{2x-1}{4}$
   (ii). $7(x - 2y) - 5(x - 3y)$

6. Calculate the following
   (a) 2.01×0.015 (b) $(9.1 \times 10^{-5}) \div (7 \times 10^{-3})$

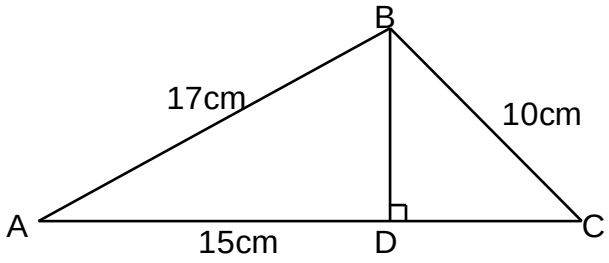
Giving your answer (i) correct to 3 significant figures
(ii) correct to 2 decimal places
(iii) in standard form

7. At constant speed a car used five litres of petrol to travel 80km. At the same speed, how much petrol is needed to travel 120km.

8. How many sides has a regular polygon if each interior angle is 140°.

9. A factory employs 18 women to sew 540 dresses. They take 6 weeks to do the job. If 12 women had been employed instead, how long would it have taken them to sew the 540 dresses.

10.



In ΔABC above AB=17cm, AD=15cm, BC=13cm and BD is perpendicular to AC. Calculate: (a) BD
(b) AC