

**Exercise 1.4***answers on p. 417*

No calculators may be used except for question 4.

1. Rewrite the following in index notation.

(a)  $5 \times 5$

(b)  $3 \times 3 \times 3$

(c)  $17 \times 17 \times 17$

(d)  $2 \times 2 \times 7 \times 7 \times 7$

(e)  $3 \times 3 \times 3 \times 5 \times 5 \times 11 \times 11$

(f)  $7 \times 7 \times 13 \times 17 \times 17 \times 71$

2. Express each of the following as a product of prime factors and give your answer in index notation.

(a) 10

(b) 15

(c) 16

(d) 18

(e) 20

(f) 36

(g) 48

(h) 72

(i) 144

(j) 256

3. Factorise each of the following completely.

(a) 9

(b) 12

(c) 21

(d) 24

(e) 30

(f) 42

(g) 108

(h) 125

(i) 216

(j) 648

4. Find the largest prime number less than

(a) 100,

(b) 120,

(c) 150,

(d) 200.