



# Introduction to Surds

1

- a. Explain the relationship between the area of a square and the length of one of its sides.

---

---

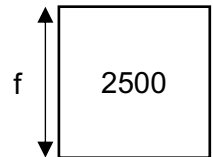
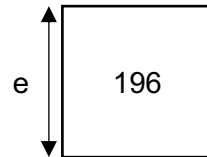
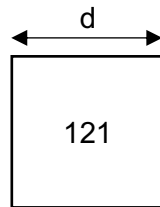
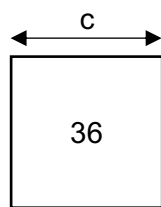
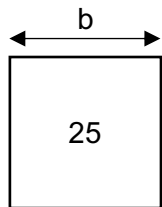
---

---

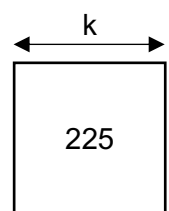
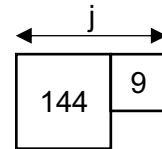
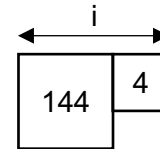
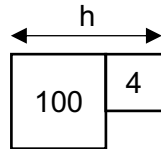
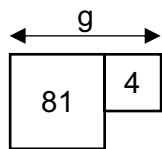
---

The diagrams below are made up of squares. The number in the middle of each square is its area.

Work out the length of the side marked with the letter.



$$b = \sqrt{\quad} =$$



- l. What do you notice about the lengths of side j and k?

---

---

---

- m. How do the diagrams in parts j and k above show  $\sqrt{a} + \sqrt{b} \neq \sqrt{a+b}$  for these values.

---

---

---

- n. Show if  $\sqrt{a} + \sqrt{b} \neq \sqrt{a+b}$  is always, sometimes or never true.

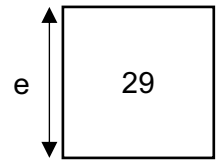
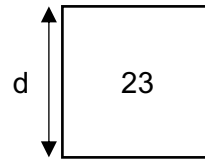
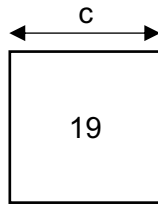
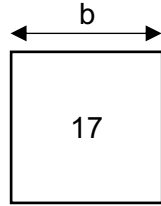
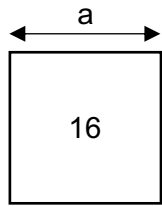
---

---

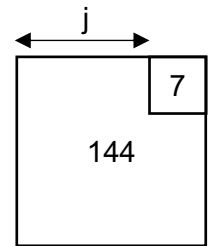
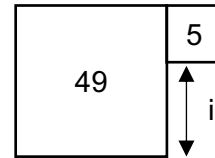
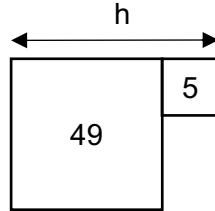
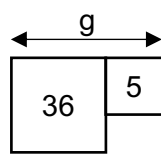
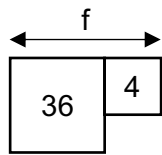
---

- 2 The diagrams below are made up of squares. The number in the middle of each square is its area.

Work out the length of the side marked with the letter.



$$a = \sqrt{\quad} =$$



- 3 a. Explain the relationship between the length of a side of a square and its area.

---



---



---

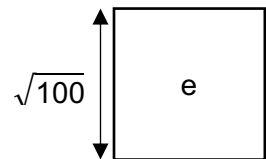
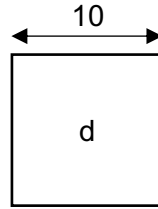
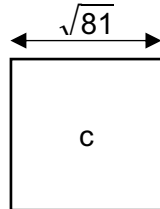
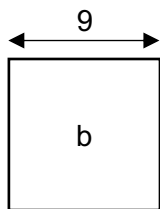


---



---

The diagrams below are made up of squares. The lengths of some of the sides are given. Work out the area of the shape.



$$b = \quad^2 =$$

- f. What do you notice about the areas b and c, and the areas d and e?

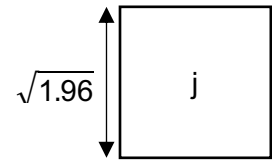
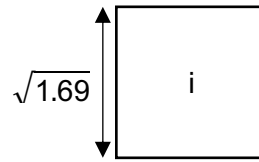
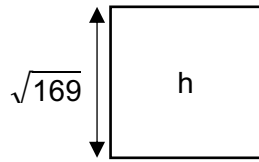
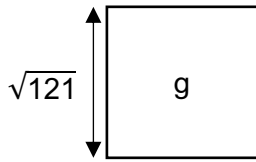
---



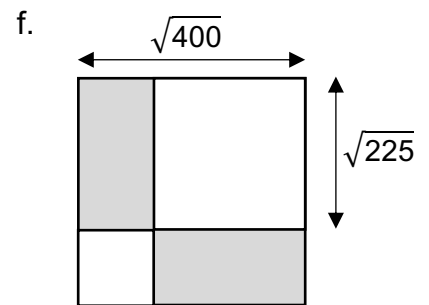
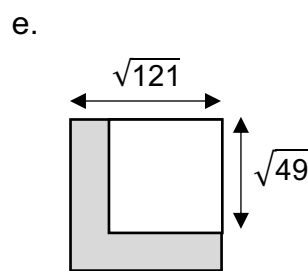
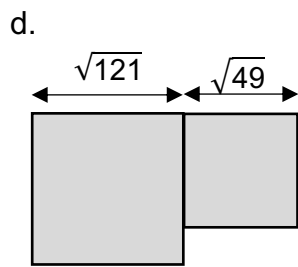
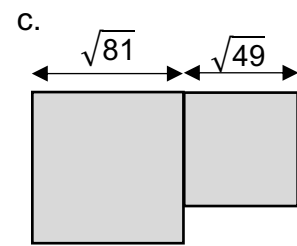
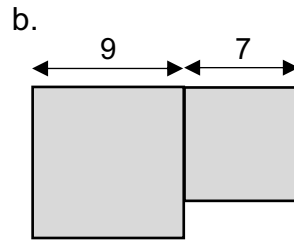
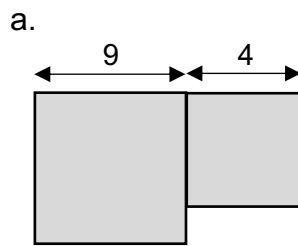
---



---



4 The diagrams below are made up of squares. Work out the **shaded area** of the shapes below.



5 Shade in the true statements in the grid below.

Hint: There are  $\sqrt{16}$  true statements.

$\sqrt{26} < 5$	$(\sqrt{5})^2 = \sqrt{5^2}$	$\sqrt{100} - \sqrt{64} = \sqrt{36}$
$15 < \sqrt{229} < 16$	$\sqrt{121}$ has an integer value.	$\sqrt{100} + \sqrt{64} = \sqrt{164}$