1 In these expressions, a, b and c represent lengths.

$$\pi(a+b) \qquad a^2+ab+abc \qquad \frac{\pi a^2}{4}+\frac{\pi ac}{2} \qquad \pi a^2(b+c)$$

Which one of these expressions could represent an area?
Show how you decide.

..... because .....

.....[2]

2

2 **(a)** Work out.

$$\sqrt{10^3-4\times15^2}$$

(a) .....[2]

(b) Simplify.

(i) $5\sqrt{2}-2\sqrt{2}$

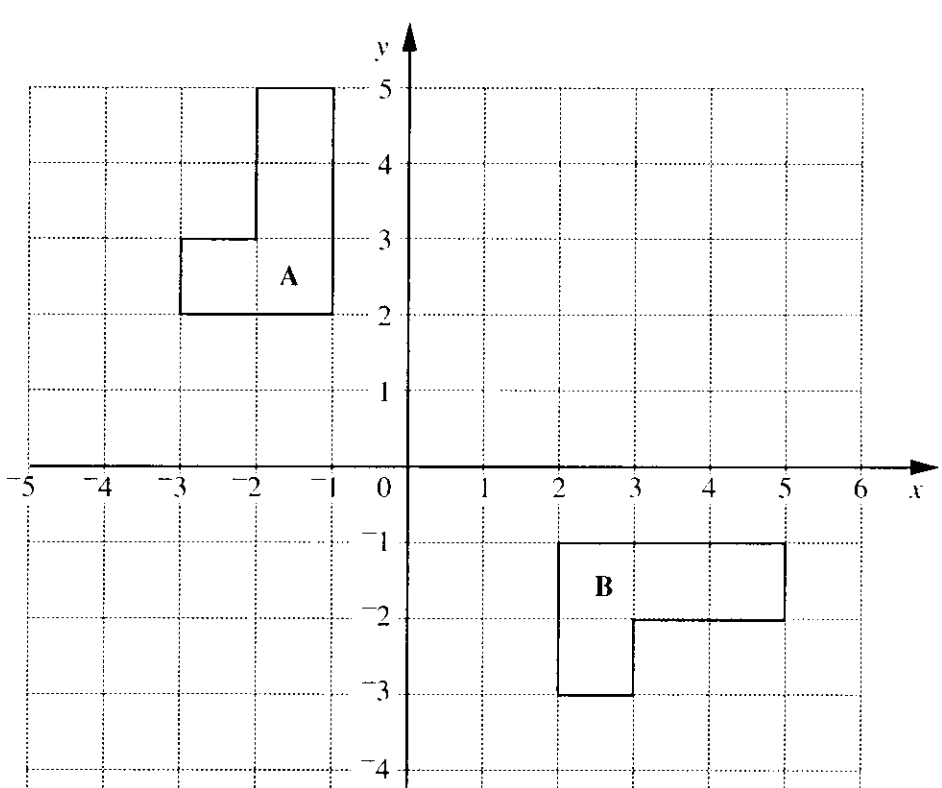
(b)(i) .....[1]

(ii) $\sqrt{3}\times\sqrt{12}$

(ii) .....[1]

4

3



(a) Describe fully the **single** transformation that maps shape **A** onto shape **B**.

.....

.....

.....[2]

(b) Rotate shape **A** 90° clockwise about the origin.
Label the image **C**.

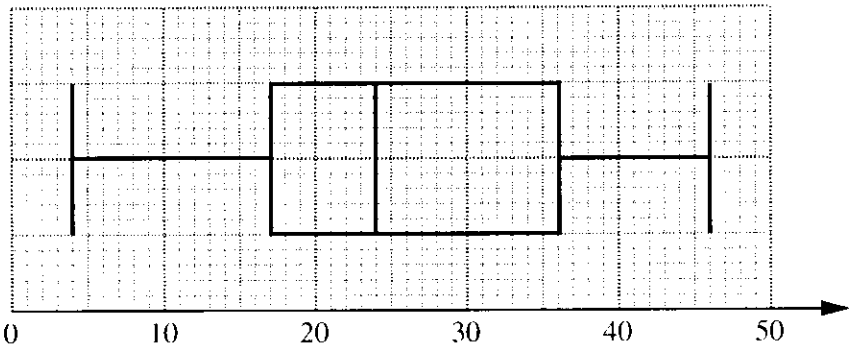
Translate the image **C** by $\begin{pmatrix} -6 \\ -5 \end{pmatrix}$.

Label the final image **D**. [3]

5

4 This box plot shows the distribution of the marks on Section A of an examination.

SECTION A



(a) Use this box plot to find

(i) the median mark,

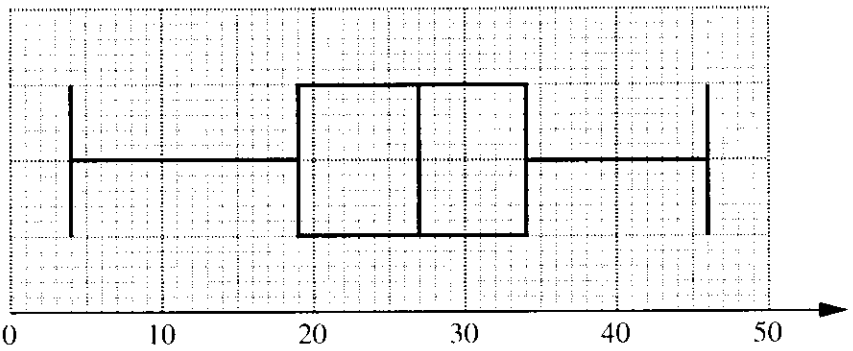
(a)(i) .....[1]

(ii) the interquartile range of the marks.

(ii) .....[1]

(b) This box plot shows the distribution of the marks on Section B of the same examination.

SECTION B



In which Section did the candidates do better?
Give a reason for your answer.

Section ..... because .....

.....[1]

3

5 **(a)** **(i)** Factorise.

$$x^2 + 9x + 20$$

(a)(i) .....[2]

(ii) Solve.

$$x^2 + 9x + 20 = 0$$

(ii) .....[1]

(b) Solve algebraically these simultaneous equations.

$$14x + 3y = 1$$
$$4x - y = 4$$

(b) x = ...

y = ...[3]

6

6 You are given that $0{\cdot}8\dot{3} = \frac{5}{6}$.

Use this information to write $0{\cdot}08\dot{3}$ as a fraction.
Give your answer in its simplest form.

.....[2]

2

7 Write down the integer values of n that satisfy this inequality.

$$^{-}5 < 3n \leqslant 12$$

.....[3]

3