

A Algebra: Solving simple quadratic equations

Skill 3.10

Solve for x :

- | | | |
|------------------------|---|----------------------------|
| 1 $\frac{x^2}{50} = 2$ | 2 $x^2 + 13 = 62$ | 3 $\frac{x^2}{2} + 1 = 33$ |
| 4 $(x+1)(x-5) = 0$ | 5 $\left(\frac{x}{2} - 1\right)(x+2) = 0$ | 6 $4(x-3)(x+10) = 0$ |
| 7 $x^2 + 2x - 8 = 0$ | 8 $x^2 - x - 12 = 0$ | 9 $2x^2 + 5x + 2 = 0$ |
| 10 $3x^2 + x - 2 = 0$ | 11 $6x^2 - 5x - 4 = 0$ | 12 $6x^2 - 17x - 3 = 0$ |

B Algebra: Solving complex quadratic equations

Skill 3.11

1 Solve the equations by using the complete the square method:

- | | | |
|-------------------------|-------------------------|-------------------------|
| (a) $x^2 + 4x - 6 = 0$ | (b) $x^2 - 2x - 4 = 0$ | (c) $x^2 + 6x - 11 = 0$ |
| (d) $x^2 - 4x - 10 = 0$ | (e) $x^2 - 6x - 12 = 0$ | |

2 Use the general quadratic to solve these equations:

- | | | |
|------------------------|------------------------|------------------------|
| (a) $2x^2 - x - 5 = 0$ | (b) $3x^2 + x - 6 = 0$ | (c) $x^2 - 4x + 1 = 0$ |
| (d) $5x^2 + x - 1 = 0$ | (e) $x^2 + 6x + 1 = 0$ | |

C Indices: Solving indicial equations

Skill 4.8

1 Solve these for x :

- | | | |
|-----------------|-----------------|----------------|
| (a) $x^6 = 64$ | (b) $6^x = 36$ | (c) $4^x = 64$ |
| (d) $5^x = 625$ | (e) $x^3 = 729$ | |

2 Solve these equations by using the logarithm method:

- | | | |
|-----------------|------------------|-----------------|
| (a) $2^x = 14$ | (b) $3^x = 18$ | (c) $5^x = 1.2$ |
| (d) $3^x = 108$ | (e) $3^x = 20.5$ | |

D Cartesian plane: Finding the distance between two points

Skill 5.2

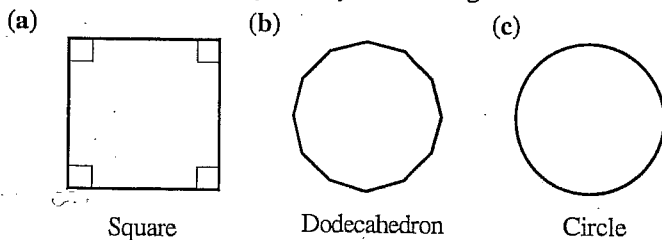
Find the distance between these points using the formula method:

- | | |
|-----------------------|----------------------|
| 1 (1, 1) and (2, 6) | 2 (3, 8) and (4, 9) |
| 3 (5, 8) and (-2, -3) | 4 (6, -2) and (0, 2) |

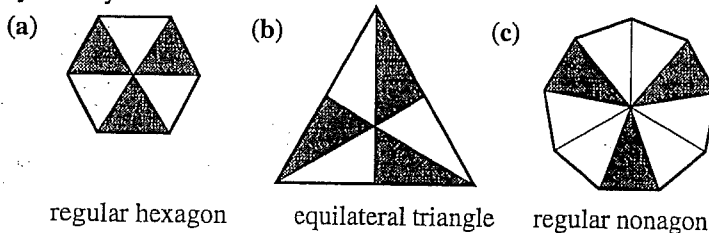
E Geometry: Symmetrical properties of plane shapes

Skill 6.4

1 Mark the axes of line symmetry in these figures:



2 Identify the angle through which these shapes need to be turned to exhibit rotational symmetry.



Worksheet 18

- A 1 ± 10 2 ± 7 3 ± 8 4 $-1, 5$
 5 $2, -2$ 6 $3, -10$ 7 $2, -4$ 8 $4, -3$
 9 $-\frac{1}{2}, -2$ 10 $\frac{2}{3}, -1$ 11 $-\frac{1}{2}, 1\frac{1}{3}$ 12 $-\frac{1}{6}, 1\frac{1}{2}$

- B 1 (a) $-2 \pm \sqrt{10}$ (b) $1 \pm \sqrt{5}$ (c) $-3 \pm 2\sqrt{5}$
 (d) $2 \pm \sqrt{14}$ (e) $3 \pm \sqrt{21}$

2 (a) $\frac{1 \pm \sqrt{41}}{4}$ (b) $\frac{-1 \pm \sqrt{73}}{6}$

(c) $\frac{4 \pm \sqrt{12}}{2} = 2 \pm \sqrt{3}$ (d) $\frac{-1 \pm \sqrt{21}}{10}$

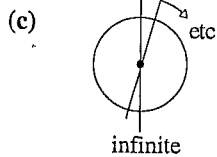
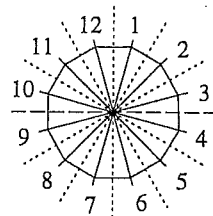
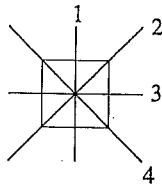
(e) $-\frac{6 \pm \sqrt{32}}{2} = -3 \pm 2\sqrt{2}$

- C 1 (a) 2 (b) 2 (c) 3 (d) 4
 (e) 9

- 2 (a) 3.81 (b) 2.63 (c) 0.11
 (d) 4.26 (e) 2.75

- D 1 5.10 2 1.14 3 13.04 4 7.21

- E 1 (a) (b)



- 2 (a) 120°
 (b) 120°
 (c) 140°