

A Algebra: Simultaneous equations

Skill 3.9

- Solve these simultaneous equations using the substitution method:
 - $y = 4x, x + y = -10$
 - $y = 2x - 1, y = x + 3$
 - $y = x - 1, 2x + y = 8$
 - $y = 3x + 2, x + y = -10$
- Solve the simultaneous equations using the elimination method:
 - $x + y = 14$
 $x - y = 2$
 - $3x + y = 6$
 $2x + y = 1$
 - $3x + 2y = 12$
 $x + y = 4$
 - $5x + 2y = 10$
 $x + y = 2$

B Indices: Working with fractional powers

Skill 4.7

- Evaluate:
 - $169^{\frac{1}{2}}$
 - $1^{\frac{1}{3}} - 1$
 - $36^{\frac{1}{2}} + 5$
 - $27^{\frac{1}{3}}$
 - $(-27)^{\frac{1}{3}} + 2$
 - $3(-8)^{\frac{1}{3}}$
 - $(49 \times 25)^{\frac{1}{2}} + 9$
 - $225^{\frac{1}{2}} + 64^{\frac{1}{3}}$
 - $4 \times 8^{\frac{1}{3}} + 10$
 - $-2500^{\frac{1}{2}} - 36$
- Simplify:
 - $\left(\frac{36a^8b^4}{c^4}\right)^{\frac{1}{2}}$
 - $\left(\frac{27a^9b^3}{c^{12}}\right)^{\frac{1}{3}}$
 - $\left(\frac{64a^8b^4}{c^{12}}\right)^{\frac{1}{2}}$
 - $\left(-\frac{125a^3b^9}{c^{21}}\right)^{\frac{1}{3}}$
 - $-(289x^4y^6)^{\frac{1}{2}}$

C Cartesian plane: Plotting cubic equations

Skill 5.10

Generate a set of points for these cubics and then plot them on a set of axes:

1 $y = x^3 + 2x$

2 $y = 5x - x^3$

x	-2	-1	0	1	2
y					

x	-2	-1	0	1	2
y					

D Cartesian plane: Finding the gradient of a line between two points

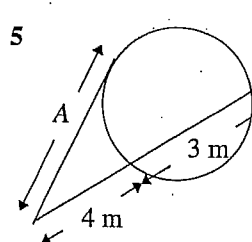
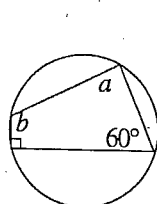
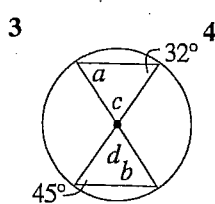
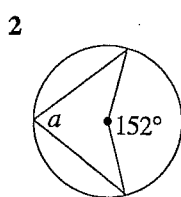
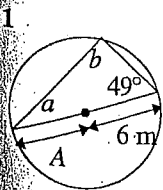
Skill 5.1

- Find the gradient of the line between the points using the graph construction method
 - (1, 2) and (5, 8)
 - (-1, 2) and (7, 3)
 - (2, -1) and (-4, 3)
 - (-6, -2) and (3, 4)
 - (-2, 6) and (3, -2)
- Find the gradient of the line between these points using the formula method
 - (6, -12) and (2, 4)
 - (-3, 0) and (7, -5)
 - (11, 12) and (4, -3)
 - (7, 17) and (-3, 2)
 - (5, -3) and (-2, 8)

E Geometry: Angle properties of circles

Skill 6.3

Find the labelled angles or sides in these:



Worksheet 17

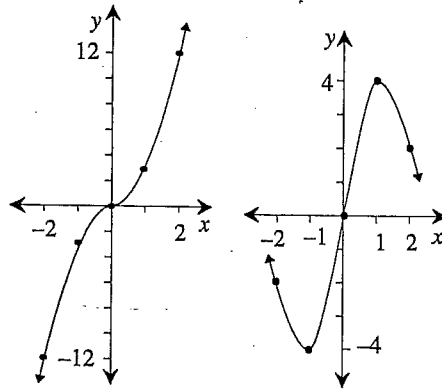
A 1 (a) $x = -2, y = -8$ (b) $x = 4, y = 7$
 (c) $x = 3, y = 2$ (d) $x = -3, y = -7$

2 (a) $x = 8$ (b) $x = 5$ (c) $x = 4$
 $y = 6$ $y = -9$ $y = 0$
 (d) $x = 2$
 $y = 0$

B 1 (a) 13 (b) 0 (c) 11 (d) 3
 (e) -1 (f) -6 (g) 44 (h) 19
 (i) 18 (j) 14

2 (a) $\frac{6a^4b^2}{c^2}$ (b) $\frac{3a^3b}{c^4}$ (c) $\frac{8a^4b^2}{c^6}$
 (d) $-\frac{5ab^3}{c^7}$ (e) $-17x^2y^3$

C 1 $(-12, -3, 0, 3, 12)$ **2** $(-2, -4, 0, 4, 2)$



D 1 (a) $1\frac{1}{2}$ (b) $\frac{1}{8}$ (c) $-\frac{2}{3}$ (d) $\frac{2}{3}$
 (e) $-1\frac{3}{5}$

2 (a) -4 (b) $-\frac{1}{2}$ (c) $2\frac{1}{7}$ (d) $1\frac{1}{2}$
 (e) $-1\frac{4}{7}$

E 1 $b = 90^\circ$ $a = 41^\circ$ $A = 6 \text{ m}$	2 $a = 76^\circ$	3 $a = 45^\circ$ $b = 32^\circ$ $c = d = 103^\circ$
4 $a = 90^\circ$ $b = 120^\circ$	5 $A = \sqrt{12}$ $= 3.46 \text{ m}$	