

## A Algebra: Solving complex linear equations

Skill 3.6

Solve these equations for  $x$ :

- |                             |                           |                                   |
|-----------------------------|---------------------------|-----------------------------------|
| 1 $4x + 2 = -3x + 16$       | 2 $-2x + 3 = 6x + 11$     | 3 $-x + 4 = -3x - 6$              |
| 4 $-5(x + 6) = -120$        | 5 $6(4x + 1) = 18$        | 6 $\frac{5x + 1}{4} = -3$         |
| 7 $\frac{1 - x}{4} = 2$     | 8 $\frac{3 - 4x}{2} = -3$ | 9 $3(x + 2) = 2x + 1$             |
| 10 $\frac{-5x + 2}{7} = -3$ | 11 $9x + 14 = -2x - 8$    | 12 $\frac{6(x - 3)}{5} + 4 = -14$ |

## B Indices: Expanding brackets with indices

Skill 4.5

Simplify:

- |  |                      |                  |   |
|--|----------------------|------------------|---|
| 1 $\left(\frac{2a^6}{b^2}\right)^3$      | 2 $(-3a^2b^4)^2$     | 3 $-(4a^4b^3)^3$ | 4 $\left(\frac{5a^2b^3}{c}\right)^2$    |
| 5 $\left(\frac{2^2a^4b^3}{c^8}\right)^2$ | 6 $(3^3a^4b^9)^3$    | 7 $(3^4a^4b)^3$  | 8 $\left(\frac{-3a^4b^3}{c^5}\right)^2$ |
| 9 $\left(\frac{a^3b^4}{c^4}\right)^{10}$ | 10 $(-4a^2b^3c^8)^2$ |                  |   |

## C Cartesian plane: Plotting quadratic equation

Skill 5.7

Complete the tables of values and plot the curves on a set of axes:

1  $y = 3 - x^2$

2  $y = x^2 - x - 2$

$x$	-2	-1	0	1	2
$y$					

$x$	-2	-1	0	1	2
$y$					

## D Cartesian plane: Shifting parabolas

Skill 5.8

For each of the following show  $y = x^2$  as a reference curve and indicate the shift and/or shape change:

1  $y = 3x^2$

2  $y = x^2 - 4$

3  $y = 2(x + 4)^2$

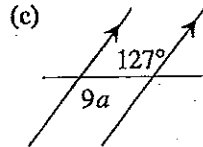
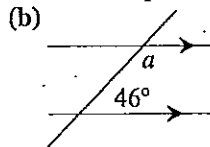
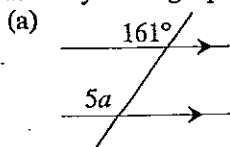
4  $y = (x - 3)^2 + 2$

5  $y = \frac{1}{2}x^2 + 3$

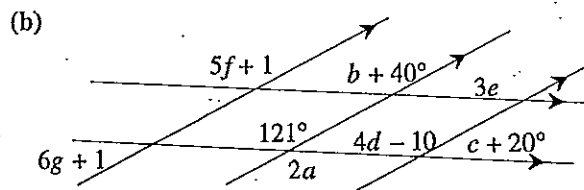
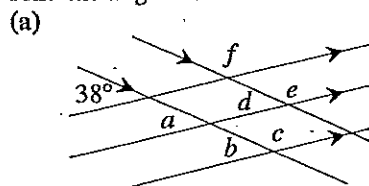
## E Geometry: Working with angles between parallel lines

Skill 6.1

1 Identify the angle pair and use an equation to solve for the pronumeral:-



2 Find the angles:



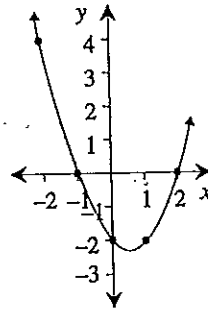
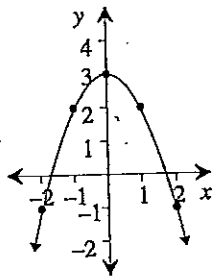
## Worksheet 15

- A** 1 2      2 -1      3 -5      4 18  
 5  $\frac{1}{2}$       6  $-2\frac{3}{5}$       7 -7      8  $2\frac{1}{4}$   
 9 -5      10  $4\frac{3}{5}$       11 -2      12 -12

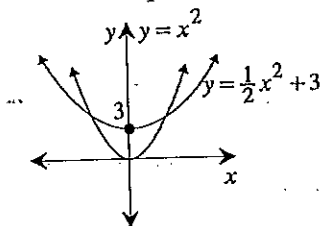
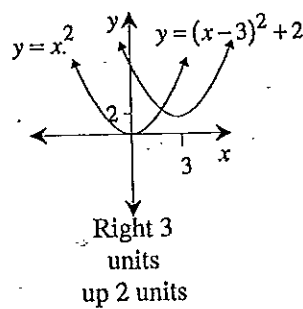
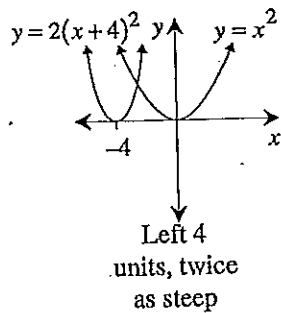
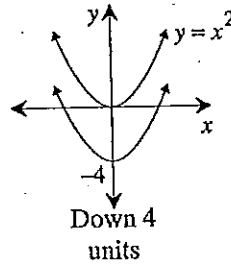
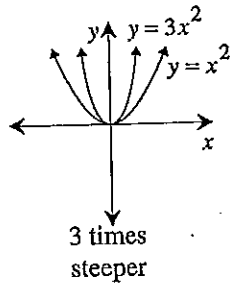
- B** 1  $\frac{8a^{18}}{b^6}$       2  $9a^4b^8$       3  $-64a^{12}b^9$   
 4  $\frac{25a^4b^6}{c^2}$       5  $\frac{16a^8b^6}{c^{16}}$       6  $19863a^{12}b^{27}$   
 7  $531441a^{12}b^3$       8  $\frac{9a^8b^6}{c^{10}}$       9  $\frac{a^{30}b^{40}}{c^{40}}$

10  $16a^4b^6c^{16}$

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



**D**



- E** 1 (a) Corresponding,  $32.2^\circ$   
 (b) Allied or co-interior,  $134^\circ$   
 (c) Alternate,  $14\frac{1}{9}^\circ$   
 2 (a)  $a = b = d = 38^\circ$ ,  $c = e = f = 142^\circ$   
 (b)  $a = 60.5^\circ$ ,  $c = 39^\circ$ ,  $e = 40\frac{1}{3}^\circ$ ,  $g = 9\frac{2}{3}^\circ$ ,  
 $b = 81^\circ$ ,  $d = 32.75^\circ$ ,  $f = 24^\circ$