**1.** (a) Complete this factorisation.

 *x*2 – *x* – 6 = (*x* + 2)(................)

[1]

 (b) Hence solve.

 *x*2 – *x* – 6 = 0

..................................

[1]

**2.** (a) Factorise.

 3*x*2 + 10*x* – 8

.....................................

[2]

 (b) By completing the square, solve this equation.

 *x*2 – 12*x* + 4 = 0

 Leave your answer in the form *c* ± .

....................................

[4]

**3.** (a) Write *x2 +* 6*x –* 6 in the form *(x + a)2 + b.*

....................................

[3]

 (b) Use your answer to part (**a**) to write down the minimum value of

*x2 +* 6*x –* 6.

....................................

[1]

**4.** Solve algebraically these simultaneous equations.

*y* = 5 – *x*2 *x* + *y* = 3

*x* = .............. *y* = ..............

*x* = .............. *y* = ..............

[5]

**5.** The expression *x*2 – 4*x* – 21 can be written in the form (*x* – *a*)2 – *b*.

(a)Find the values of *a* and *b*.

*a* = .....................................

*b* = .....................................

[3]

(b)Hence find the minimum value of the expression
and the value of *x* at which it occurs.

minimum value............... when *x* =...............

[2]

**6.** (a) Factorise.

*x*2 – 3*x* – 10

....................................

[2]

 (b) Hence solve.

*x*2 – 3*x* – 10 = 0

....................................

[1]

**7.** (a)Factorise and solve.

 *x*2 – *x* – 30 = 0

.......................................

[3]

(b) Solve this equation, leaving your answers in surd form.

 2*x*2 + *x* – 2 = 0

.......................................

[3]

**8.** (a) By completing the square, express *x*2 + 8*x* + 25 in the form (*x* + *a*)2 + *b*.

....................................

[3]

(b) Hence state the minimum value of *x*2 + 8*x* + 25.

...................................

[1]

**9.** (a) Solve.

 *x*² – 5*x* – 14 = 0

.....................................

[3]

 (b) Rearrange this formula to make *p* the subject.

 *m* = 

....................................

[2]

**10.** (a) By completing the square, express *x*2 + 12*x* – 10 in the form (*x* + *a*)2 + *b*.

....................................

[3]

 (b) Hence state the minimum value of *x*2 + 12*x* – 10.

...................................

[1]

**11.** (a) Factorise.

 *x*2 – 2*x* – 15

......................................

[2]

 (b) Hence solve this equation.

 *x*2 – 2*x* – 15 = 0

.....................................

[1]

**12.** (a) Expand and simplify.

 (2*x* + 3) (*x* – 5)

..........................................

[3]

 (b) Solve by factorising.

 5*x*2– 12*x* + 7 = 0

.........................................

[3]

**13.** Find algebraically the coordinates of the points of intersection of the curve *y* = *x*2 + 7*x* + 9 and the line *y* = *x* + 4.

(............ , ............) and (............ , ............)

[5]

**14.** Solve.

 2*x*2 + 3*x* – 8 = 0

 Give your answers correct to two decimal places.

..........................................

[3]

**15.** (a) Solve algebraically.

 

......................................

[4]

 (b) Factorise and solve this equation.

 3*x*2 − 7*x* + 2 = 0

.....................................

[3]

**16.** Solve by factorisation.

 *x*2 + *x* – 20 = 0

..........................................

[3]

**17.** (a) Factorise and solve.

 *x*2 – 5*x* – 14 = 0

.......................................

[3]

(b) Solve algebraically.

 5*x* – 2*y* = 19
6*x* + *y* = 16

*x* = .....................................

*y* = ................................

[3]

**18.** Solve algebraically these simultaneous equations.

 *y* = 5*x*2 + 4*x* – 5

 2*x* + *y* = 3

*x* = ............... *y* = ...............

*x* = ............... *y* = ...............

[5]

**19.** (a) Expand and simplify.

 (4*x* + 7)(*x* + 5) ..................................... **[2]**

 (b) Hence solve this equation.

  = 4*x* + 7

.................................... **[4]**

**20.** (a) By completing the square, express *x*2 – 8*x* + 10 in the form (*x* – *a*)2 – *b*.

.....................................

[3]

(b) Hence state the minimum value of *x*2 – 8*x* + 10.

....................................

[1]