

**1) Expand**

**a)**  $(x - 4)(x + 4)$

**b)**  $(3y - 2)(3y + 2)$

**c)**  $(5x - 1)(5x + 1)$

**d)**  $(x + 4)^2$

**e)**  $(3x + 2)^2$

**f)**  $(3x + 7y)^2$

**2) Factor**

**a)**  $x^2 - 25$

**b)**  $y^2 - 49$

**c)**  $9k^2 - 1$

**d)**  $16k^2 - 49$

**e)**  $25w^2 - 36$

**f)**  $4 - 9w^2$

**3) Factor**

**a)**  $x^2 - y^2$

**b)**  $36x^2 - y^2$

**c)**  $25r^2 - 36s^2$

**d)**  $144r^2 - 49s^2$

**e)**  $121x^2 - 9y^2$

**f)**  $100r^2 - 81s^2$

**4) Factor**

**a)**  $x^2 + 14x + 49$

**b)**  $x^2 - 6x + 9$

**c)**  $x^2 - 8x + 16$

**d)**  $100 - 20x + x^2$

**e)**  $4x^2 - 12xy + 9y^2$

**f)**  $49x^2 + 56xy + 16y^2$

**5) Factor if possible**

**a)**  $2a^2 + 12a + 18$

**b)**  $25x^2 - 16y$

**c)**  $75x^2 + 210xy + 147y^2$

d)  $9x^3y - 16xy^3$

e)  $36m^2 - 96mn + 64n^2$

f)  $20x^2 + 20xy + 5y^2$

6) Determine the value(s) of  $k$  such that each trinomial is a perfect square.

a)  $x^2 + kx + 16$

b)  $9x^2 + kx + 49$

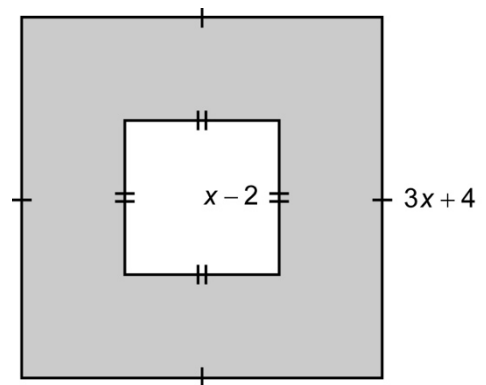
c)  $x^2 + 4x + k$

d)  $4x^2 - 12x + k$

e)  $kx^2 + 40x + 16$

f)  $kx^2 - 24xy + 9y^2$

7) Find an algebraic expression for the area of the shaded region in factored form



8) The area of a volleyball court can be represented by the trinomial  $2x^2 - 4x + 2$ .

a) Factor the trinomial completely

b) If the length of the court is twice the width, use the factors to write the expressions that represent the length and width.

c) If  $x = 10$  m, what are the length and width of the court.

## Answers

- 1)a)  $x^2 - 16$  b)  $9y^2 - 4$  c)  $25x^2 - 1$  d)  $x^2 + 8x + 16$  e)  $9x^2 + 12x + 4$  f)  $9x^2 + 42xy + 49y^2$   
2)a)  $(x - 5)(x + 5)$  b)  $(y - 7)(y + 7)$  c)  $(3k - 1)(3k + 1)$  d)  $(4k - 7)(4k + 7)$  e)  $(5w - 6)(5w + 6)$  f)  $(2 - 3w)(2 + 3w)$   
3)a)  $(x - y)(x + y)$  b)  $(6x - y)(6x + y)$  c)  $(5r - 6s)(5r + 6s)$  d)  $(12r - 7s)(12r + 7s)$  e)  $(11x - 3y)(11x + 3y)$   
f)  $(10r - 9s)(10r + 9s)$   
4)a)  $(x + 7)^2$  b)  $(x - 3)^2$  c)  $(x - 4)^2$  d)  $(10 - x)^2$  e)  $(2x - 3y)^2$  f)  $(7x + 4y)^2$   
5)a)  $2(a + 3)^2$  b) not possible c)  $3(5x + 7y)^2$  d)  $xy(3x - 4y)(3x + 4y)$  e)  $4(3m - 4n)^2$  f)  $5(2x + y)^2$   
6)a)  $\pm 8$  b)  $\pm 42$  c) 4 d) 9 e) 25 f) 16  
7)  $A = 4(x + 3)(2x + 1)$   
8)a)  $2(x - 1)^2$  b)  $2(x - 1), x - 1$  c) 18m by 9m