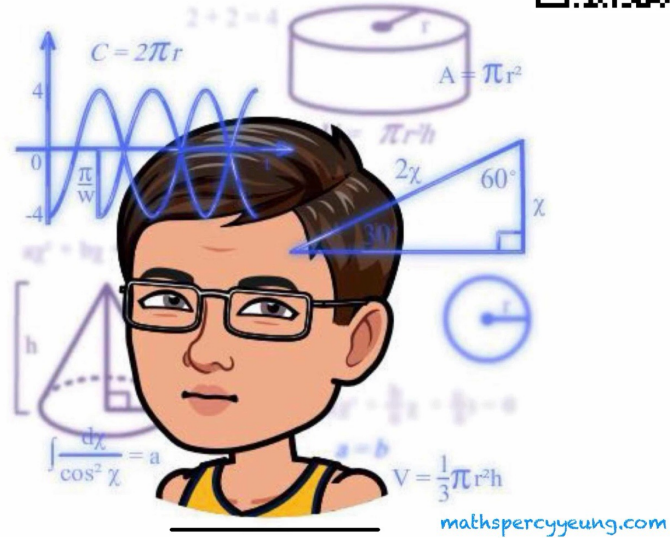




F.2 Mathematics Worksheet 3A

Ch.3 Identities and Factorization (3.1 – 3.2)



1. Prove that $2 + 4(2x - 1) = 2(4x - 1)$ is an identity.

2. Find the constants A and B of the following identities.

(a) $Ax - 5 \equiv x + B$

(b) $Ax + B \equiv 3(x - 2) - 2(2x + 1)$

3. Find the constants A , B and C

(a) $Ax^2 + Bx + C \equiv 5x^2 - 17x + 9$

(b) $(x + 7)(2x - 5) \equiv Ax^2 + Bx + C$

4. Expand the following.

(a) $(a + 1)(a - 1)$

(b) $(x - 15)(x + 15)$

(c) $(3a - 1)(3a + 1)$

(d) $(5x + 2)(5x - 2)$

(e) $(3x - 4y)(3x + 4y)$

(f) $(-b + 3)(b + 3)$

(g) $(-b-3)(b-3)$

(h) $(-2x+5)(2x+5)$

(i) $(3x+2y)(-3x+2y)$

(j) $(2x-5)(-2x-5)$

5. Expand the following.

(a) $(y+6)^2$

(b) $(x-7)^2$

(c) $(a+4b)^2$

(d) $(x-3y)^2$

(e) $(4y-1)^2$

(f) $(5x+1)^2$

(g) $(a^2+9)^2$

(h) $-(gh+g^2)^2$

(k) $-3(-m^2-mn)(m^2-mn)$

(l) $-[-3(1-pq)]^2$

6. (a) If $(x-7)(Ax+2) \equiv 3x^2 + Bx + C$, find the constants A , B and C .
(b) By using the result of (a), solve the equation $Ax + B = C - 2$.

7. (a) Expand $(a+9b)(a-9b)$.
(b) By using the result of (a), expand $(e-f+9g)(e-f-9g)$.

8. (a) Prove that $(x^2 - 1)^2 = x^4 - 2x^2 + 1$ is an identity.
(b) By using the result of (a), expand $(x^2 + x - 1)^2$.