

Algebra 3.3 P1

11a. $x(3x+2)-(2x+4)$

$= 3x^2 + 2x - 2x - 4$

$= 3x^2 - 4$

b. $3ap + 6p^2$

$= 3p(a + 2p)$

c. $(y-2)^2 = 25$

$y-2 = 5 \text{ or } y-2 = -5$

$\therefore y = -3 \text{ or } 7$

12a. $5 - 45t^2$

$= 5(1 - 9t^2)$

$= 5(1+3t)(1-3t)$

b. $6p^2 - p - 2 = (3p-2)(2p+1)$

13. $\frac{4}{2x-1} - \frac{3}{5x+6} = \frac{4(5x+6) - 3(2x-1)}{(2x-1)(5x+6)}$
 $= \frac{20x+24-6x+3}{(2x-1)(5x+6)}$
 $= \frac{14x+27}{(2x-1)(5x+6)}$

16. $\frac{4}{x+3} + \frac{3}{x} = \frac{4x+3x+9}{x(x+3)}$

$= \frac{7x+9}{x(x+3)}$

17a. $7x - 4(x-3) = 27$

$7x - 4x + 12 = 27$

$3x = 15$

$x = 5$

b. $y(2-y)(3-y) + y^2(y+5)$

$= y^3 - 5y^2 + 6y + y^3 + 5y^2$

$= 2y^3 + 6y$

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

18a. $2p^3 - 50p = 2p(p^2 - 25)$

$= 2p(p+5)(p-5)$

b. $3x - 6y + dx - 2dy$

$= (3+d)x - (3+d)2y$

$= (3+d)(x-2y)$

14a. $2\pi r^2 + 2\pi rh = 2\pi r(r+h)$

b. $ac - 3c + 2ab - 6b$

$= (a-3)c + (a-3)2b$

$= (a-3)(c+2b)$

19a. $4x^2 - 16y^2 = 4(x^2 - 4y^2)$

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

b. $3ab - 6ac - 2bd + 4cd$

$= (b-2c)3a - (b-2c)2d$

$= (b-2c)(3a-2d)$

15a. $x(x+2) = 0$

$x = 0 \text{ or } x+2 = 0$

$\therefore x = 0 \text{ or } -2$

b. $y(y+2) = 3$

$y^2 + 2y - 3 = 0$

$(y+3)(y-1) = 0$

$\therefore y = -3 \text{ or } 1$

20a(i) $n^2 - (n-2)(n+2) = n^2 - n^2 + 4$

$= 4$

a(ii) $n^2 - (n-a)(n+a) = n^2 - n^2 + a^2$

$= a^2$

b. $16947^2 - 16944 \times 16950$

$= 16947^2 - 16947^2 + 3^2$

$= 9$