

Algebra Test

$$\begin{aligned} 1a) & (5\sqrt{2} - 6)(3\sqrt{6} - 2) \\ &= [5\sqrt{2} \times 3\sqrt{6} - (5\sqrt{2} \times 2)] - [(6 \times 3\sqrt{6}) - (6 \times 2)] \\ &= [30\sqrt{12} - 10\sqrt{2}] - [18\sqrt{6} - 12] \\ &= 30\sqrt{12} - 10\sqrt{2} - 18\sqrt{6} + 12 \\ &= 12 - 10\sqrt{2} + 30\sqrt{3} - 18\sqrt{6} \end{aligned}$$

$$\begin{aligned} b) & (4m-3)(5m+7) \\ &= [4m \times 5m + (4m \times 7)] - [(3 \times 5m) + (3 \times 7)] \\ &= (20m^2 + 28m) - (15m + 21) \\ &= 20m^2 + 28m - 15m - 21 \\ &= 20m^2 + 13m - 21 \end{aligned}$$

$$\begin{aligned} c) & (6\sqrt{35} - 4\sqrt{15})(2\sqrt{5} + \sqrt{105}) \\ &= [(6\sqrt{35} \times 2\sqrt{5}) + (6\sqrt{35} \times \sqrt{105})] - [(4\sqrt{15} \times 2\sqrt{5}) + (4\sqrt{15} \times \sqrt{105})] \\ &= (60\sqrt{175} + 210\sqrt{15}) - (40\sqrt{75} + 60\sqrt{15}) \\ &= 60\sqrt{175} + 210\sqrt{15} - 40\sqrt{75} - 60\sqrt{15} \\ &= 170\sqrt{15} \end{aligned}$$

$$\begin{aligned} d) & (7x-4)(3x^2+2x-5) \\ &= [(7x \times 3x^2) + (7x \times 2x) - (7x \times 5)] - [(4 \times 3x^2) + (4 \times 2x) - (4 \times 5)] \\ &= (21x^3 + 14x^2 - 35x) - (12x^2 + 8x - 20) \\ &= 21x^3 + 14x^2 - 35x - 12x^2 - 8x + 20 \\ &= 21x^3 + 2x^2 - 43x + 20 \end{aligned}$$

$$\begin{aligned} 2a) \quad 11^{2n-5} &= 161051 \\ 11^5 &= 161051 \end{aligned}$$

$$2n-5=5$$

$$2n=10$$

$$n=5$$

Algebra Test

$$b) 3(4n-1) - (2n+3) - 3n+4 = -2(3n-7)+4$$

$$12n-3-2n-3-3n+4 = -6n+14+4$$

$$7n-2 = -6n+18$$

$$13n = 20$$

$$n = 1 \frac{7}{13}$$

$$c) \frac{5}{6}(3n+7) - 2n - \frac{n-3}{5} + 5 = \frac{7}{10}(n-3) - \frac{2n+1}{30}$$

$$25(3n+7) - 60n - 6n - 18 + 150 = 21(n-3) - 2n+1$$

$$75n+175-60n-6n-18+150 = 21n-63-2n+1$$

$$9n+307-19n-62$$

$$-10n = -369$$

$$n = 36 \frac{9}{10}$$

$$3) 2x - 5y = +3$$

$$6x + 7y = -25$$

$$-6x + 15y = -129$$

$$6x + 7y = -25$$

$$22y = -154$$

$$y = -7$$

$$x = 4$$

4)

$$\begin{vmatrix} 4 & 5 \\ 2 & -2 \end{vmatrix}$$

$$\begin{vmatrix} 1 & 2 \\ 2 & -4 \end{vmatrix}$$

$$\begin{vmatrix} -4 & 3 \end{vmatrix}$$

$$\begin{vmatrix} 4 & 5 \end{vmatrix}$$

$$= \frac{1}{2} \times (-4+6-20) - (12+8+10)$$

$$= \frac{1}{2} \times -22 - 30$$

$$= \frac{1}{2} \times 52$$

$$= 26 \text{ units}^2$$

5) 1. Trinomial

2. Quadratic