

$$\textcircled{1} \left(\frac{2}{3}\right)^{-2} = \left(\frac{3}{2}\right)^2 = \frac{3^2}{2^2} = \frac{9}{4} = 2.25$$

$$\textcircled{2} \left(\frac{3x^{3/2}y^3}{x^2y^{-1/2}}\right)^{-2} = \left(\frac{3x^{3/2}y^{\underline{3}}y^{\underline{1/2}}}{x^2}\right)^{-2}$$

$$= \left(\frac{3x^{3/2}y^{7/2}}{x^2}\right)^{-2} = \left(\underline{3}x^{-1/2}\underline{y^{7/2}}\right)^{-2}$$

$$(ab)^n = a^n b^n$$

$$= 3^{-2} (x^{-1/2})^{-2} (y^{7/2})^{-2}$$

$$= \frac{1}{9} x^1 y^{-7} = \frac{x}{9y^7}$$

$$\textcircled{3} (\overset{\textcolor{blue}{a}}{\underbrace{2x+3}})^2 = (2x+3)(2x+3) \quad \textcolor{green}{FOIL}$$

$$= 4x^2 + 6x + 6x + 9$$

$$= 4x^2 + 12x + 9$$

$$(a+b)^2 = a^2 + 2ab + b^2$$

$$\textcircled{4} \quad 2x^2 + 5x - 12 = (2x - \underline{3})(x + \underline{4})$$

$$12 : 12 \times 1 \quad 6 \times 2 \quad 4 \times 3$$

$$\textcircled{5} \quad \underline{x^3} - \underline{3x^2} - \underline{4x} + \underline{12}$$

$$= (x^3 - 4x) + (-3x^2 + 12)$$

$$= x(\underline{x^2 - 4}) - 3(\underline{x^2 - 4})$$

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

$$(a^2 - b^2) = (a + b)(a - b)$$