

13 B

$$1. \quad f) \quad (2x+5)^3 = (2x)^3 + 3(2x)^2(5) + 3(2x)(5)^2 + (5)^3 \\ = 8x^3 + 60x^2 + 150x + 125$$

$$l) \quad \left(x^2 - \frac{1}{x^2}\right)^3 = \left(x^2\right)^3 + 3\left(x^2\right)^2\left(-\frac{1}{x^2}\right)^1 \\ + 3\left(x^2\right)^1\left(-\frac{1}{x^2}\right)^2 + \left(-\frac{1}{x^2}\right)^3 \\ = x^6 - 3x^2 + \frac{3}{x^2} - \frac{1}{x^6}$$

$$9. \quad b) \quad (2a + 3b)^6 \\ = 20(2a)^3(3b)^{6-3} \\ = 20(2a)^3(3b)^3 \\ = 4320a^3b^3$$

6	5	4	3
1	6	15	20

Ex IB

				1		1						1
			1		2		1					2
		1		3		3		1				3
	1		4		6		4		1			4
	1	5		10		10	5		1			5
1		6		15		20		15	6		1	6

6.

$$\begin{aligned} \text{a)} \quad (1 + \sqrt{2})^3 &= (1)^3 + 3(1)^2(\sqrt{2}) + 3(1)(\sqrt{2})^2 + (\sqrt{2})^3 \\ &= 1 + 3\sqrt{2} + 6 + 2\sqrt{2} \\ &= 7 + 5\sqrt{2} \end{aligned}$$

$$\begin{aligned} c) (2 - \sqrt{2})^5 &= (2)^5 + 5(2)^4(-\sqrt{2})^1 + 10(2)^3(-\sqrt{2})^2 + \\ &\quad 10(2)^2(-\sqrt{2})^3 + 5(2)^1(-\sqrt{2})^4 + (-\sqrt{2})^5 \\ &= 32 - 80\sqrt{2} + 160 - 80\sqrt{2} + 40 - 4\sqrt{2} \\ &= 232 - 164\sqrt{2} \end{aligned}$$

$$\begin{aligned} 7. \quad (2+x)^6 &= 2^6 + 6(2)^5x + 15(2)^4x^2 + 20(2)^3x^3 \\ &\quad + 15(2)^2x^4 + 6(2)^1x^5 + x^6 \\ &= 64 + 192x + 240x^2 + 160x^3 \\ &\quad + 60x^4 + 12x^5 + x^6 \end{aligned}$$

$$(2 + 0.01)^6 = 64 + 1.92 + 0.0240 + 0.000160 + 0.00000060 + 0.000000012 + 0.0000000001$$

[illegible]