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Problem Solving Set A - Chapter 8

Bronze:

$$a) {}^6C_3 (3)^3 (-kx)^3 = -540k^3x^3$$

$$-540k^3 = -4320$$

$$k^3 = \frac{-4320}{-540}$$

$$k^3 = 8$$

$$\underline{k = 2}$$

$$b) {}^6C_4 (3)^2 (-2x)^4 = \underline{2160x^4}$$

Silver:

$$a) 2^{10} + {}^{10}C_1 (2)^9 (-px) + {}^{10}C_2 (2)^8 (-px)^2$$

$$\hookrightarrow 2048 - 11264px + 28160p^2x^2$$

$$b) q = -11264p$$

$$10q = 28160p^2$$

$$q = 2816p^2$$

$$2816p^2 = -11264p$$

$$2816p^2 + 11264p = 0$$

$$2816p(p+4) = 0$$

$$\therefore p = 0 \text{ or } \underline{p = -4}$$

$$\text{When } p = -4$$

$$q = -11264(-4)$$

$$\underline{q = 45056}$$

Gold:

$${}^8C_2 (3)^6 \left(\frac{x}{k}\right)^2 = \frac{20412}{k^2} x^2$$

$${}^8C_3 (3)^5 \left(\frac{x}{k}\right)^3 = \frac{13608}{k^3} x^3$$

$$\frac{20412}{k^2} = 3 \left(\frac{13608}{k^3} \right)$$

$$\frac{20412}{k^2} = \frac{40824}{k^3}$$

$$20412k^3 = 40824k^2$$

$$20412k = 40824$$

$$k = \frac{40824}{20412}$$

$$\underline{\underline{k=2}}$$

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