Extra Review Answers

(1) $0 = \frac{3x(x-3)}{(6-2x)^{3/2}} - \frac{(x+1)}{(6-2x)^{1/2}}\frac{(6-2x)}{(6-2x)}$

$0 = \frac{3x(x-3)-(x+1)(6-2x)}{(6-2x)^{3/2}} = \frac{3x(x-3)+2(x+1)(x-3)}{(6-2x)^{3/2}}$

$0 = (x-3)(3x+2x+2)$

$0 = (x-3)(5x+2)$

$x = 3, -2/5$ $\boxed{x = -2/5 \text{ only}}$

(2) (a) $6k^3+16k^2-15k-40$

$2k^2(3k+8)-5(3k+8)$

$(2k^2-5)(3k+8)$

(b) $8x^4+2x^3+16x^2+4x$

$2x(4x^3+x^2+8x+2)$

$2x(x^2(4x+1)+2(4x+1))$

$2x(x^2+2)(4x+1)$

(c) $320x^2-5x^5$

$5x^2(64-x^3)$

$5x^2(4-x)(16+4x+x^2)$

③

$$\frac{4}{x^3} = \frac{k}{3\sqrt{x}}$$

$$k = \frac{12\sqrt{x}}{x^3} = \frac{12}{x^{5/2}}$$

$$\frac{12}{x^{5/2}} = 4x^{3/2}$$

$$12 = 4x^4$$

$$x^4 = 3$$

$$\boxed{x = \sqrt[4]{3} = 3^{1/4}}$$

$$\frac{4}{kx^{5/2}} = \frac{1}{x^4}$$

$$kx^{5/2} = 4x^4$$

$$k = \frac{4x^4}{x^{5/2}} = 4x^{3/2}$$

$$k = 4(3^{1/4})^{3/2}$$

$$\boxed{k = 4 \cdot 3^{3/8}}$$