Foundation Algebra for Physical Sciences and Engineering (CELEN036)

Homework 7 Answers

1.

(a) n

(b) $\frac{(n+1)n}{2}$

(c) $\frac{n-k}{k+1}$

(d) $\frac{n+1}{r}$

2.

(a)
$$x^5 - 5x^4 + 10x^3 - 10x^2 + 5x - 1$$

(b)
$$x^4 - 12x^3y + 54x^2y^2 - 108xy^3 + 81y^4$$

(c)
$$x^{-4} - 8\frac{y^2}{x^3} + 24\frac{y^4}{x^2} - 32\frac{y^6}{x} + 16y^8$$

(d)
$$x^{12} + 12x^9 + 60x^6 + 160x^3 + 240 + 192x^{-3} + 64x^{-6}$$

(e)
$$243 x^5 + 405 x^2 + 270 x^{-1} + 90 x^{-4} + 15 x^{-7} + x^{-10}$$

(f)
$$x^7 - 7x^6 + 21x^5 - 35x^4 + 35x^3 - 21x^2 + 7x - 1$$

3.

(a) 24

(b) $-\frac{5120}{9}$

(c) 42240

(d) 3360

(e) -3003

(f) -192456

(g) 15

4.

(a) 0.9759

(b) $\delta\beta = 0.8\%\beta$