Practice 3.1-3.3 Answer Key

① $6x^3+8x^2+4x-7$

LC: 6
Degree: 3
Terms: 4
Cubic

② $-x^5-4x^4-2x^3-19x+13$

LC: -1
Degree: 5
Terms: 5
Quintic

③ $x^6-7x^5-2x^4+6x^2-x+5$

LC: 1
Degree: 6
Terms: 6
Sextic

④ $(5x^3-12x-x^2+9-12x^5-6x^4)-?=(19+8x^3-18x-19x^5-2x^2-8x^4)$

$(5x^3-12x-x^2+9-12x^5-6x^4)-(19+8x^3-18x-19x^5-2x^2-8x^4)=?$

$7x^5+2x^4-3x^3+x^2+6x-10$

⑤ $-10y^3x^2+4xy^4+y^5$

⑥ $[(2a-b)(2a-b)](2a-b)$

$(4a^2-2ab-2ab+b^2)(2a-b)$

$(4a^2-4ab+b^2)(2a-b)$

$8a^3-4a^2b-8a^2b+4ab^2+2ab^2-b^3$

$8a^3-12a^2b+6ab^2-b^3$

⑦ $6m^2n^2+12m^3n-2m^4+3n^3+6mn^2-m^2n$

⑧ $[(\frac{1}{3}x+4)(\frac{1}{3}x+4)](\frac{1}{3}x+4)$

$(\frac{1}{9}x^2+\frac{4}{3}x+\frac{4}{3}x+16)(\frac{1}{3}x+4)$

$(\frac{1}{9}x^2+\frac{8}{3}x+16)(\frac{1}{3}x+4)$

$\frac{1}{27}x^3+\frac{4}{9}x^2+\frac{8}{9}x^2+\frac{32}{3}x+\frac{16}{3}x+64$

$\frac{1}{27}x^3+\frac{12}{9}x^2+\frac{48}{3}x+64$

$\frac{1}{27}x^3+\frac{4}{3}x^2+16x+64$

(7) $a^3b^4+a^5+a^2b^6+a^4b^2$

$a^2b^6+a^3b^4+a^4b^2+a^5$

(10) $k^6-k^5-9k^4+k^5-k^4-9k^3+12k^2-12k-108$

$k^6-10k^4-9k^3+12k^2-12k-108$

(1)
$$2x+4 \overline{)\ x^2+5x-12\ \big|\ 2x^3+14x^2-4x-48}$$
$$-(2x^3+4x^2)$$
$$10x^2-4x-48$$
$$-(10x^2+20x)$$
$$-24x-48$$
$$-(-24x-48)$$
$$0$$

$x^2+5x-12$

(12)
$$x-3 \overline{)\ x^2+15x+45\ \big|\ x^3+12x^2+0x-4}$$
$$-(x^3-3x^2)$$
$$15x^2+0x-4$$
$$-(15x^2-45x)$$
$$45x-4$$
$$-(45x-135)$$
$$131$$

$x^2+15x+45+\frac{131}{x-3}$

(13) $a=1$

1	6	0	0	-3	1	-2
	↓	6	6	6	3	4
	6	6	6	3	4	2

$6x^4+6x^3+6x^2+3x+4+\frac{2}{x-1}$

(14) $a=3$

3	-1	-7	6	0	-1
	↓	-3	-30	-96	-288
	-1	-10	-24	-96	-289

$-x^3-10x^2-24x-96-\frac{289}{x-3}$

(15) $C(t) \div A(t) = \#\text{ships}$

$0.2t^3+1000t^2+10t+50{,}000 \div 0.1t+500$

$$0.1t+500 \overline{)\ 2t^2+100\ \big|\ 0.2t^3+1000t^2+10t+50000}$$
$$-(0.2t^3+1000t^2)$$
$$0 \quad 10t+50000$$
$$-(10t+50000)$$
$$0$$

The number of ships entering the port each year is modeled by $2t^2+100$, where t is the # of years