Math 102: Chapter 5 Supplement Solutions

1a. $3^3 \cdot 7^2 \cdot 23$

1b. $3 \cdot 29 \cdot 31 \cdot 37$

1c. $5^3 \cdot 11^2 \cdot 19$

1d. $2^6 \cdot 11 \cdot 17 \cdot 29$

1e. $41 \cdot 271$

1f. prime

2a. GCD $= 294$ and LCM $= 37,044$

2b. GCD $= 5$ and LCM $= 1,412,840$

2c. GCD $= 2,222$ and LCM $= 26,664$

2d. GCD $= 4$ and LCM $= 76,320$

2e. GCD $= 84$ and LCM $= 317,520$

2f. GCD $= 63$ and LCM $= 2,593,080$

3. We find the least common multiple of the three numbers to arrive at $2,590,770$ years.

4a. $55/9$

4b. $872/165$

4c. $305/333$

4d. $1,909/2,475$

4e. $16,507/1,650$

4f. 5

5a. Irrational

5b. Rational, with the lengthy repeating element 12112111211212 (you have to look carefully at this one).

5c. Irrational

5d. Rational (it equals 2.0001)

5e. $\sqrt{3} \cdot \sqrt{8} = \sqrt{3 \cdot 8} = \sqrt{24} = 2\sqrt{6}$, which is irrational simply because $\sqrt{6}$ is.

5f. $\sqrt{2 \cdot 18} = \sqrt{36} = 6$, which is rational.

6a. Use the Commutative Property of Addition to change $2x + (15 + 7x)$ to $2x + (7x + 15)$; then, use the Associative Property of Addition to get $(2x + 7x) + 15$, which immediately yields $9x + 15$.

6b. Use the Distributive Property to change $10y + 4(3 + 5y)$ to $10y + (12 + 20y)$; then, use the Commutative Property of Addition to get $10y + (20y + 12)$; next, use the Associative Property of Addition to obtain $(10y + 20y) + 12$, which immediately yields $30y + 12$.