Evaluate or simplify where appropiate.

1. $\sum_{k=1}^{4}(k-1)^2$

2. $\prod_{i=2}^{10}\frac{(i+1)}{i}$

3. $\log(e^2)$

4. $e^4 e^{10}$

5. $10^3 10^{-2}$

6. $400^{\frac{1}{2}}$

7. Compute the root(s) of the following quadratic equation:

$$x^2 - 8x + 12 = 0$$

8. Compute the root(s) of the following quadratic equation:

$$x^2 + 5x + 4 = 0$$

9. Suppose the supply curve for oil is expressed with the following linear equation:

$$-x + 4y = 30$$

And the demand curve is expressed with this equation:

$$2x + 5y = 9$$

Solve the system of linear equations to compute the equilibrium cost. Plot the two lines.

10. Compute the limit:
$$\lim_{x \to \infty} x^4$$

11. Compute the limit:
$$\lim_{x \to 2} x^4$$

12. Compute the limit:
$$\lim_{x \downarrow 3} \frac{1}{x - 3}$$