

$$1. \frac{4(3^2) - 6(2)}{6 + 2^2} = \frac{4(9) - 6(2)}{6 + 4} = \frac{36 - 12}{10} = \frac{24}{10} = \frac{12}{5} \text{ or } 2\frac{2}{5}$$

$$2. \sqrt{\frac{8^2 - 3^2 - 5(6)}{2(5) + 6}} = \sqrt{\frac{64 - 9 - 5(6)}{2(5) + 6}} = \sqrt{\frac{64 - 9 - 30}{10 + 6}} = \sqrt{\frac{25}{16}} = \frac{5}{4}$$

$$3. 5^2 - [2(3) + 1] = 5^2 - (6 + 1) = 5^2 - 7 = 25 - 7 = 18$$

$$4. \frac{8 + 2(3^2 - 4^2)}{15 - 6(3 + 1)} = \frac{8 + 2(9 - 16)}{15 - 6(4)} = \frac{8 + 2(-7)}{15 - 24} = \frac{8 - 14}{-9} = \frac{-6}{-9} = \frac{2}{3}$$

$$\begin{aligned} 5. \frac{3(20 + 4)}{2(9) - 4^2} \cdot \sqrt[3]{\frac{5(8) + 41}{12 - 3(16 - 13)}} &= \frac{3(20 + 4)}{2(9) - 16} \cdot \sqrt[3]{\frac{40 + 41}{12 - 3(3)}} \\ &= \frac{3(24)}{18 - 16} \sqrt[3]{\frac{40 + 41}{12 - 9}} = \frac{72}{2} \sqrt[3]{\frac{81}{3}} \\ &= 36 \sqrt[3]{27} = 36(3) = 108 \end{aligned}$$