Applied Math: Order of Operations DAY TWO

Key

Simplify.

1) $-5\sqrt{3} - 3\sqrt{3}$

$\boxed{-8\sqrt{3}}$

2) $2\sqrt{8} - \sqrt{8}$

$\boxed{1\sqrt{8}}$

3) $-4\sqrt{6} - \sqrt{6}$

$\boxed{-5\sqrt{6}}$

4) $-3\sqrt{5} + 2\sqrt{5}$

$\boxed{-\sqrt{5}}$

5) $-3\sqrt{27} - 3\sqrt{27} - 3\sqrt{27}$

$-9\sqrt{27} < \begin{matrix}3\\9\end{matrix} \left(\begin{matrix}3\\3\end{matrix}\right)$

$\boxed{-27\sqrt{3}}$

6) $-3\sqrt{12} + 3\sqrt{3} + 3\sqrt{20}$

$\quad 3(4) \qquad (4)5$

$-6\sqrt{3} + 3\sqrt{3} + 6\sqrt{5}$

$\boxed{-3\sqrt{3} + 6\sqrt{5}}$

7) $-2\sqrt{45} - 3\sqrt{20} - 2\sqrt{6}$

$\quad (9)5 \quad (4)5$

$-6\sqrt{5} - 6\sqrt{5} - 2\sqrt{6}$

$\boxed{-12\sqrt{5} - 2\sqrt{6}}$

8) $-3\sqrt[6]{3} - 2\sqrt[6]{192} - \sqrt[6]{320}$

$\quad (64)3 \quad (64)5$

$-3\sqrt[6]{3} - 4\sqrt[6]{3} - 2\sqrt[6]{5}$

$\boxed{-7\sqrt[6]{3} - 2\sqrt[6]{5}}$

9) $-3\sqrt[3]{-3} + 2\sqrt[3]{162} + 3\sqrt[3]{81}$

$\quad (27)6 \quad (27)3$

$+3\sqrt[3]{3} + 6\sqrt[3]{6} + 9\sqrt[3]{3}$

$\boxed{12\sqrt[3]{3} + 6\sqrt[3]{6}}$

10) $4\sqrt[6]{3} + 2\sqrt[4]{32} - 3\sqrt[6]{192} - 2\sqrt[6]{192}$

$\quad (16)2 \quad (64)3 \quad (64)3$

$4\sqrt[6]{3} + 4\sqrt[4]{2} - 6\sqrt[6]{3} - 4\sqrt[6]{3}$

$\boxed{-6\sqrt[6]{3} + 4\sqrt[4]{2}}$

11) $-\sqrt[3]{320} - 4\sqrt[3]{5} + 2\sqrt[3]{135} + 2\sqrt[3]{16}$

$\quad (64)5 \qquad (27)5 \quad (8)2$

$-4\sqrt[3]{5} - 4\sqrt[3]{5} + 6\sqrt[3]{5} + 4\sqrt[3]{2}$

$\boxed{-2\sqrt[3]{5} + 4\sqrt[3]{2}}$

12) $2\sqrt[3]{6} - \sqrt[6]{6} + 3\sqrt[3]{6} - 3\sqrt[6]{384}$

$\qquad\qquad\qquad (64)6$

$2\sqrt[3]{6} - \sqrt[6]{6} + 3\sqrt[3]{6} - 6\sqrt[6]{6}$

$\boxed{5\sqrt[3]{6} - 7\sqrt[6]{6}}$

13) $\sqrt[3]{3} \cdot \sqrt[3]{-20}$

$-1 \cdot 4 \cdot 5$

$\sqrt[3]{3} \cdot -\sqrt[3]{20} = \boxed{-\sqrt[3]{60}}$

14) $\sqrt{5} \cdot \sqrt{3}$

$\boxed{\sqrt{15}}$

15) $\sqrt{6} \cdot \sqrt{2}$

$\sqrt{12} < \frac{4}{3}$

$\boxed{2\sqrt{3}}$

16) $\sqrt[3]{3} \cdot \sqrt[3]{9}$

$\sqrt[3]{27} < \begin{matrix}3 \\ 3 \\ 3\end{matrix}$ $\boxed{3}$

17) $3\sqrt{3}(4 - 3\sqrt{5})$

$\boxed{12\sqrt{3} - 9\sqrt{15}}$

18) $4\sqrt{15}(-3\sqrt{6} + 5)$

$-12\sqrt{90} + 20\sqrt{15}$

$9 \cdot 10$

$\boxed{-36\sqrt{10} + 20\sqrt{15}}$

Simplify each expression.

19) $9x + 9 - 1$

$\boxed{9x + 8}$

20) $10n - 4n$

$\boxed{6n}$

21) $-9 - 6(-v + 5)$

$-9 + 6v - 30$

$\boxed{-39 + 6v}$

22) $-10(-8x + 9) - 8x$

$80x - 90 - 8x$

$\boxed{72x - 90}$

23) $1 + 4(2 - 3k)$

$1 + 8 - 12k$

$\boxed{9 - 12k}$

24) $-8v + 6(10 + 6v)$

$-8v + 60 + 36v$

$\boxed{28v + 60}$

25) $7(1 + 9v) - 8(-5v - 6)$

$7 + 63v + 40v + 48$

$\boxed{103v + 55}$

26) $-10(x - 7) - 7(x + 2)$

$-10x + 70 - 7x - 14$

$\boxed{-17x + 56}$

27) $-2(-6x - 9) - 4(x + 9)$

$12x + 18 - 4x - 36$

$\boxed{8x - 18}$

28) $9(7k + 8) + 3(k - 10)$

$63k + 72 + 3k - 30$

$\boxed{66k + 42}$