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Exercises #1

1. $-8 \div 2 \cdot 4 - 5$

$-4 \cdot 4 - 5 \Rightarrow -16 - 5 = \boxed{-21}$

2. $5(-5 + 6 \div 2) \cdot 6^2$

$5(-2) \cdot 6 \Rightarrow -10 \cdot 36 \Rightarrow \boxed{-360}$

3. $(-7-3) \div [\overset{-6}{-2-4-(-8)}] \Rightarrow \boxed{-5}$

$-10 \div 2 \Rightarrow$

4. $-6 + (-2-3)^3 \div 5 \qquad \overset{(+25) \div 5}{-131 \div 5} \qquad -6 + (-25) = \boxed{-31}$

$-6 + (-5)^3 \div 5 \Rightarrow -6 + -125 \div 5$

5. $(-2 \cdot 2^3 \cdot 2) \div (-4) \qquad = \boxed{8}$

$\underset{-32}{-16 \cdot 2} \Rightarrow -32 \div 4$

6. $-6^2 - 5\left(\underset{-3}{\overset{9}{-2-4}}\right)^2 \div 5 \Rightarrow \cdot \frac{3}{3} \qquad -\frac{81}{2} \Rightarrow \boxed{40.5}$

$36 - 5 \qquad = -81$

$31(9) \div 5$

7. $[(-3)^3 + 2 \cdot 5^2 - 25]^2 \div [5(2^3-1)-3] \qquad 4/6 \Rightarrow \boxed{\frac{1}{3}}$

$27 + 50 - 25 = 4: \qquad 4-1$

$4 \div$

8. $\dfrac{-(2-6) - 2 \cdot 2}{-(-4) + 2 - (-3+1)} = -(-8) \overset{8-18}{\div} \dfrac{10}{8} \Rightarrow \boxed{\frac{5}{4}}$

9. $\left[\dfrac{-1 - 5^2 + 11}{18 - (-2^3 + 6)^3}\right]^2 \left[\dfrac{15}{26}\right]^2 = \dfrac{225}{676} \boxed{= \frac{1}{3}}$

10. $\dfrac{-2^2 \cdot 5(-1)^{?} (5-4 \div 2)^2}{5 - 18 (2-3)} = \dfrac{45}{-5} = \boxed{-9}$

~~Exercise~~
Challenge Questions (#1)

(#1) $2^2(-5^3 \div 25 - 8 \times 2^2 + 10 - 2^5) \div (10-11)^5$

$-5^3 = 125$

$-125 \div 25 - 8 \times 2^2 + 10 - 2^5$

$-5 - 8 \cdot 4 + 10 - 32$ $-5 - 32 + 10 - 32$

$= -59$

$4(-59) = \boxed{-236}$

(#2) $\left[\dfrac{-3^2 - (-2)^3 + 10}{(10-2^3)^2} \right]^2$ $\left[\dfrac{81}{-16} \right]^2 = \dfrac{81}{-1}$

$(4-2^3)^2 = (8)^2 = 16$

$15 - 16 = -1$

(#3) $\left[\dfrac{38 - 53 - 3}{15 - (4-2^2)^3} \right]^2 = \left[\dfrac{-90}{15} \right]^2 \Rightarrow \boxed{36}$

$\underset{15}{4}$

$\underset{4}{ }$

(#4) $\left[\dfrac{-11 - (-2)^2 - 3}{15 - (4^2 - 4)^3} \right]^2 \quad [-5^3 - 3(-2-1)^2 \div 9]$

$\underset{16 \quad 12}{ } \qquad 3^2(-3-5^2) = -252$

$\left[\dfrac{-18}{-12} \right]^2 = \dfrac{324}{\,} \; 9/4 \qquad -\dfrac{252}{25} = \boxed{-63}$

(#5) $[-5^2 \div 3(-2^2 -1) \div 9] \div \left[\dfrac{38 - 53 - 3}{15 - (4-2^3)^3} \right]^{-2} = 15 \quad \dfrac{125}{27}$

$125 \qquad\qquad\qquad\qquad 35 - 53 \quad 2\sqrt{500}$

Challenge Questions #2

(#1) $-\frac{3}{2}\left(-\frac{5}{2}x - \frac{1}{5}\right) = \frac{5}{2}(-x+1)$

$\frac{5}{2}(1-x) \Rightarrow \frac{5(1-x)}{2} = \frac{3}{2}\left(-\frac{5}{2}x - \frac{1}{5}\right)\cdot 2$

$-3\left(-\frac{5x}{2} - \frac{1}{5}\right) = 5 - 5x$

$2 \cdot \frac{15x}{2} + \frac{3}{5} = 5 - 5x \cdot 2$

$15x + \frac{6}{5} = 10 - 10x$

$-\frac{6}{5} \qquad -\frac{6}{5}$

$15x = 10 - 10x - \frac{6}{5} \Rightarrow 15x = -10x + \frac{44}{5}$

$\frac{25x}{25} = \frac{44}{5} / 25 \Rightarrow x = \boxed{\frac{44}{125}}$

(#2)