SmartMathz

Order of Operations (involving the four arithmetic operations and parenthesis)

Grade 6 Expressions & Equations Worksheet

Date:_____   Name:_____

Evaluate each expression using order of operations (**PEMDAS**).

Note: **MD** (Multiplication and Division is from Left to Right); **AS** (Addition and Subtraction is from Left to Right)

1. $-2 \times [(3 - 4 \times 7) \div 5] - 2 \times 24 \div 6 = \boxed{}$
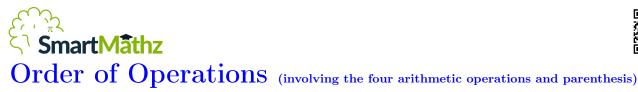
Workings:

2. $-2 \times [(4 - 5 \times 8) \div 6] - 3 \times 25 \div 5 = \boxed{}$

Workings:

3. $(3 \times 5 \div 15) - 3 [(24 \div 8) - 5] = \boxed{}$

Workings:

4. $4 \times 3 \div 2 + 5 \times [(6 \times 3 - 1) + 6] = \boxed{}$

Workings:

5. $(-12 - 4 + 5) - (18 \div 2 - 6 + 7) = \boxed{}$

Workings:

Order of Operations (involving the four arithmetic operations and parenthesis)

Grade 6 Expressions & Equations Answer Sheet

Workings:

$-2 \times [(3 - 4 \times 7) \div 5] - 2 \times 24 \div 6$ First, simplify the parenthesis $4 \times 7 = 28$

$= -2 \times [(3 - 28) \div 5] - 2 \times 24 \div 6$ Simplify the parenthesis $3 - 28 = -25$

$= -2 \times [-25 \div 5] - 2 \times 24 \div 6$ Simplify the parenthesis $-25 \div 5 = -5$

$= -2 \times [-5] - 2 \times 24 \div 6$ Next, multiply $-2 \times [-5] = 10$

$= 10 - 2 \times 24 \div 6$ Now, multiply $2 \times 24 = 48$

$= 10 - 48 \div 6$ Then, divide $48 \div 6 = 8$

$= 10 - 8$ Finally, subtract $10 - 8 = 2$

$= \mathbf{2}$ ✓

1. $-2 \times [(3 - 4 \times 7) \div 5] - 2 \times 24 \div 6 = \boxed{\mathbf{2}}$

Workings:

$-2 \times [(4 - 5 \times 8) \div 6] - 3 \times 25 \div 5$ First, simplify the parenthesis $5 \times 8 = 40$

$= -2 \times [(4 - 40) \div 6] - 3 \times 25 \div 5$ Again, simplify the parenthesis $4 - 40 = -36$

$= -2 \times [-36 \div 6] - 3 \times 25 \div 5$ Now, simplify the parenthesis $-36 \div 6 = -6$

$= -2 \times [-6] - 3 \times 25 \div 5$ Next, multiply $-2 \times [-6] = 12$

$= 12 - 3 \times 25 \div 5$ Then, multiply $3 \times 25 = 75$

$= 12 - 75 \div 5$ Next, divide $75 \div 5 = 15$

$= 12 - 15$ Finally, subtract $12 - 15 = -3$

$= \mathbf{-3}$ ✓

2. $-2 \times [(4 - 5 \times 8) \div 6] - 3 \times 25 \div 5 = \boxed{\mathbf{-3}}$

Workings:

$(3 \times 5 \div 15) - 3 [(24 \div 8) - 5]$ First, simplify the parenthesis $3 \times 5 = 15$

$= (15 \div 15) - 3 \times [(24 \div 8) - 5]$ Again, simplify the parenthesis $15 \div 15 = 1$

$= 1 - 3 \times [(24 \div 8) - 5]$ Simplify the parenthesis $24 \div 8 = 3$

$= 1 - 3 \times [3 - 5]$ Simplify the parenthesis $3 - 5 = -2$

$= 1 - 3 \times [-2]$ Next, multiply $3 \times [-2] = -6$

$= 1 - [-6]$ Then, simplify the parenthesis $1 - [-6] = 1 + 6$

$= 1 + 6$ Finally, Add $1 + 6 = 7$

$= \mathbf{7}$ ✓

3. $(3 \times 5 \div 15) - 3 [(24 \div 8) - 5] = \boxed{\mathbf{7}}$

4. $4 \times 3 \div 2 + 5 \times [(6 \times 3 - 1) + 6] = \boxed{\textbf{121}}$

Workings:

$4 \times 3 \div 2 + 5 \times [(6 \times 3 - 1) + 6]$ Simplify the parenthesis $6 \times 3 = 18$

$= 4 \times 3 \div 2 + 5 \times [(18 - 1) + 6]$ Simplify the parenthesis $18 - 1 = 17$

$= 4 \times 3 \div 2 + 5 \times [17 + 6]$ Next, simplify the parenthesis $17 + 6 = 23$

$= 4 \times 3 \div 2 + 5 \times [23]$ Then, multiply $5 \times [23] = 115$

$= 4 \times 3 \div 2 + 115$ Next, multiply $4 \times 3 = 12$

$= 12 \div 2 + 115$ Also, divide $12 \div 2 = 6$

$= 6 + 115$ Finally, add $6 + 115 = 121$

$= \textbf{121}$ ✔

5. $(-12 - 4 + 5) - (18 \div 2 - 6 + 7) = \boxed{\textbf{-21}}$

Workings:

$(-12 - 4 + 5) - (18 \div 2 - 6 + 7)$ First, simplify the parenthesis $-12 - 4 = -16$

$= (-16 + 5) - (18 \div 2 - 6 + 7)$ Again, simplify the parenthesis $-16 + 5 = -11$

$= -11 - (18 \div 2 - 6 + 7)$ Simplify the parenthesis $18 \div 2 = 9$

$= -11 - (9 - 6 + 7)$ Simplify the parenthesis $9 - 6 = 3$

$= -11 - (3 + 7)$ Simplify $3 + 7 = 10$

$= -11 - 10$ Finally, subtract $-11 - 10 = -21$

$= \textbf{-21}$ ✔

$4 \times 3 \div 2 + 5 \times [(6 \times 3 - 1) + 6]$ Simplify the parenthesis $6 \times 3 = 18$

$= 4 \times 3 \div 2 + 5 \times [(18 - 1) + 6]$ Simplify the parenthesis $18 - 1 = 17$

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