Expressions

6th Grade

PEMDAS

( )	PARENTHESES
y^x	EXPONENTS
×	MULTIPLICATION
÷	DIVISION
+	ADDITION
−	SUBTRACTION

x	$4x + 1$
1	5
−2	−7
9	37
6	25
−3	−11

Workbook 1

Order of Operations: Exponents

E

Solve.

1) $4^3 + 15 \div 3$

Ans =

2) $7 \times 2^4 - 28$

Ans =

3) $6^2 - 92 \div 4$

Ans =

4) $2 \times 3^3 + 10$

Ans =

5) $5^2 \times 6 - 85$

Ans =

6) $64 \div 2^5 + 24$

Ans =

7) $70 \div 5 - 2^3$

Ans =

8) $4^2 + 7 \times 2$

Ans =

9) $2 \times 3^3 + 1$

Ans =

10) $7 + 80 \div 4^2$

Ans =

Order of Operations: Exponents

M

Solve.

1) $7^2 - 5 \times 12$

Ans =

2) $19 + 3^4 \div 9$

Ans =

3) $2^5 - 80 \div 2$

Ans =

4) $5 \times 4^2 + 12$

Ans =

5) $6^3 + 2 \times 3$

Ans =

6) $108 \div 3^3 - 6$

Ans =

7) $74 + 48 \div 4^2$

Ans =

8) $9^2 - 10 \times 2$

Ans =

9) $8^3 \div 16 + 2$

Ans =

10) $4 \times 3 - 6^2$

Ans =

Order of Operations: Exponents

D

Solve.

1) $(-5)^2 \times 3 + 12$

Ans =

2) $54 \div 3^3 - 8$

Ans =

3) $4^2 + (-8) \div 2$

Ans =

4) $25 + 2^2 \times 6$

Ans =

5) $7^3 - 17 \times 5$

Ans =

6) $3^4 \div 9 - 21$

Ans =

7) $14 \div 7 + 5^2$

Ans =

8) $2^5 \times (-6) + 3$

Ans =

9) $(-8)^2 + 2 \times 4$

Ans =

10) $14 - 81 \div (-3)^3$

Ans =

Order of Operations: Exponents

E

Solve.

1) $6 - 12 \div 4 + 9^2 \times 2$

Ans =

2) $5^3 - 30 \div 3 + 4^2$

Ans =

3) $18 \div 6 + 8^2 \times 3 + 2^5$

Ans =

4) $48 \div 2 \times 5 + 7^2 - 3$

Ans =

5) $4 \times 5 + 3^3 - 15 \div 5$

Ans =

6) $9 \times 3^2 \div 9 - 4$

Ans =

7) $44 + 11 - 2^4 \div 2^3 \times 3$

Ans =

8) $8 \times 4 + 10^2 \div 5$

Ans =

9) $32 + 28 \div 4 \times 3^2 - 95$

Ans =

10) $6^3 - 52 + 9 \times 3$

Ans =

Order of Operations: Exponents

M

Solve.

1) $5^2 + 26 \div 2 - 67$

Ans =

2) $16 \times 2^3 - 19 + 3^2$

Ans =

3) $19 - 10 \div 5 + 6^2 \times 2$

Ans =

4) $4^2 \times 3 - 2^4 + 21 \div 7$

Ans =

5) $8^2 + 1 \times 5 - 45$

Ans =

6) $24 \div 3 + 5^3 - 13^2$

Ans =

7) $48 \div 12 - 4^3 + 3$

Ans =

8) $9^2 + 2 \times 3 \div 6 - 49$

Ans =

9) $3 \times 2^5 + 15 - 12^2$

Ans =

10) $8 + 88 \div 11 - 4^3 + 2$

Ans =

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Evaluate the Expressions: Multi-variables

Evaluate the algebraic expressions for the given values of each variable.

1) $3x + y$ at $x = \frac{1}{2}, y = 2$

2) $\frac{pq}{r} - p$ at $p = 4, q = 1, r = -2$

3) $4fgh + 5$ at $f = -1, g = 2, h = 3$

4) $n^2 - m^2$ at $m = \frac{1}{3}, n = 1$

5) $\frac{s - 4}{t^2}$ at $s = -5, t = 2$

6) $(u + v)^2$ at $u = 1, v = 3$

7) abc at $a = \frac{2}{5}, b = 1, c = 4$

8) $-8x + 3y$ at $x = 4, y = \frac{1}{3}$

Multiple Choice

Part - A

1) Which of the following satisfies $2x^2 + 5x = 7$?

i) $x = 1$ ii) $x = -2$ iii) $x = 5$ iv) $x = 0$

2) Which of the following satisfies $5u + 1 = -4$?

i) $u = 3$ ii) $u = 7$ iii) $u = \frac{1}{5}$ iv) $u = -1$

3) Which of the following satisfies $\frac{v}{2} - 2 = 1$?

i) $v = 2$ ii) $v = 6$ iii) $v = 10$ iv) $v = 30$

4) Which of the following satisfies $3m - 5 = 10$?

i) $m = -1$ ii) $m = 0$ iii) $m = -3$ iv) $m = 5$

Part - B

1) Which of the following equation is true at $s = 5$?

i) $s + 2 = 7$ ii) $s - 3 = 12$ iii) $2s + 5 = 23$ iv) $\frac{s}{5} - 1 = 8$

2) Which of the following equation is true at $r = -1$?

i) $r^2 + 2r = 3$ ii) $\frac{r}{5} + 5 = -8$ iii) $(r - 1)(2r + 1) = 2$ iv) $r^3 + 3r = -9$

3) Which of the following equation is true at $a = 2$?

i) $(a + 1)(5a - 3) = 2$ ii) $a^2 + 7a + 2 = 37$ iii) $\frac{2}{a} + 1 = -7$ iv) $\frac{3a - 2}{a} = 2$

Multiple Choice

Part - A

1) Which of the following satisfies $u + v = 3$?

i) $u = 3, v = 0$ ii) $u = 4, v = 1$ iii) $u = -1, v = 2$ iv) $u = 6, v = 10$

2) Which of the following satisfies $(2a + 1)(b - 1) = 28$?

i) $a = 1, b = 1$ ii) $a = 3, b = 5$ iii) $a = \frac{1}{2}, b = 4$ iv) $a = 10, b = -3$

3) Which of the following satisfies $\frac{2m + 1}{5n - 1} = \frac{11}{4}$?

i) $m = 2, n = \frac{1}{5}$ ii) $m = \frac{1}{2}, n = -1$ iii) $m = 5, n = 1$ iv) $m = -2, n = 0$

4) Which of the following satisfies $2xy(z + 1) = 30$?

i) $x = 1, y = -2, z = 1$ ii) $x = 0, y = 4, z = 9$ iii) $x = 3, y = 1, z = 4$ iv) $x = 7, y = 8, z = -1$

Part - B

1) Which of the following equation is true at $x = 3$ and $y = 1$?

i) $x + y = 3$ ii) $x + y = 5$ iii) $x - y = 1$ iv) $x + y = 4$

2) Which of the following equation is true at $p = 2$ and $q = 4$?

i) $p + q = 6$ ii) $p - q = 0$ iii) $\frac{p}{q} = 8$ iv) $2p + q = 10$

3) Which of the following equation is true at $s = -1$, $t = 1$ and $u = 2$?

i) $s + t - u = 4$ ii) $2s - 3t + u = -1$ iii) $5s - t - u = -8$ iv) $\frac{s}{t} + u = 10$

Function Table

Complete the function tables.

1)

z	$z^2(z + 3)$
–2	
–1	
–3	
1	
2	

2)

v	$v^2 - 10$
5	
–8	
6	
–10	
4	

3)

c	$\frac{c}{4} - 2$
24	
36	
12	
80	
8	

4)

q	2q + 1
3	
7	
2	
10	
1	

5)

b	(b + 5)(b + 2)
4	
–2	
1	
5	
–1	

6)

n	$\frac{16}{n + 1}$
7	
0	
3	
15	
1	

Function Table

Complete the function tables.

1)

x	(8x – 5)(2x + 3)
–2	
0.5	
$\frac{3}{4}$	
–6	
$\frac{1}{2}$	

2)

r	$r^2 - 3r - 12$
–1	
0.8	
10	
2	
$-\frac{2}{3}$	

3)

a	$2a^2 + 7$
$\frac{1}{3}$	
–9	
–0.1	
18	
$\frac{1}{4}$	

4)

p	7p(2p + 4)
0.3	
–7	
$\frac{1}{7}$	
–8	
$\frac{1}{3}$	

5)

t	$3t^2 - t$
0.3	
8	
$\frac{7}{3}$	
$-\frac{1}{5}$	
–1	

6)

m	$\frac{(m + 5)(2m - 3)}{m + 4}$
–3	
$\frac{1}{2}$	
5	
2	
1	