A.N.6: Evaluating Expressions 1: Evaluate expressions involving factorial(s), absolute value(s), and exponential expression(s)

1 If $t = -3$, then $3t^2 + 5t + 6$ equals
1) −36
2) −6
3) 6
4) 18

2 What is the value of the expression $2x^3y$ when $x = -2$ and $y = 3$?
1) −192
2) −108
3) −48
4) 48

3 If $a = 3$ and $b = -1$, what is the value of $ab - b^2$?
1) −2
2) 2
3) −4
4) 4

4 If $x = -4$ and $y = 3$, what is the value of $x - 3y^2$?
1) −13
2) −23
3) −31
4) −85

5 What is the value of the expression $-3x^2y + 4x$ when $x = -4$ and $y = 2$?
1) −112
2) −80
3) 80
4) 272

6 If $x = 2$ and $y = -3$, what is the value of $2x^2 - 3xy - 2y^2$?
1) −20
2) −2
3) 8
4) 16

7 What is the value of the expression $(a^3 + b^0)^2$ when $a = -2$ and $b = 4$?
1) 64
2) 49
3) -49
4) -64

8 If $x = 4$ and $y = -2$, the value of $\frac{1}{2}xy^2$ is
1) 32
2) 8
3) −4
4) −8

9 What is the value of $\frac{x^2 - 4y}{2}$, if $x = 4$ and $y = -3$?
1) −2
2) 2
3) 10
4) 14

10 The expression $-|-7|$ is equivalent to
1) 1
2) 0
3) 7
4) −7

11 The value of the expression $|-20| - |6|$ is
1) 26
2) 14
3) −14
4) −26

12 What is the value of the expression $|-5x + 12|$ when $x = 5$?
1) −37
2) −13
3) 13
4) 37

13 The value of the expression $-|a - b|$ when $a = 7$ and $b = -3$ is
1) −10
2) 10
3) −4
4) 4

14 If $r = 2$ and $s = -7$, what is the value of $|r| - |s|$?
1) 5
2) −5
3) 9
4) −9

15 If $x = -3$, what is the value of $|x - 4| - x^2$?
1) -8
2) -2
3) 7
4) 16

16 What is the value of the expression $3a^2 - 4|a| + 6$ when $a = -3$?
1) -24
2) -9
3) 21
4) 45

17 The value of 5! is
1) $\frac{1}{5}$
2) 5
3) 20
4) 120

18 An expression equivalent to 3! is
1) $3 \cdot 3$
2) $3 \cdot 2 \cdot 1$
3) $3 \cdot 3 \cdot 3$
4) -3

19 The value of $\frac{7!}{3!}$ is
1) 840
2) 24
3) 7
4) 4

20 What is the value of $\frac{8!}{4!}$?
1) 1,680
2) 2
3) 2!
4) 4!

21 The value of the expression $6! + \frac{5!(3!)}{4!} - 10$ is
1) 50
2) 102
3) 740
4) 750

22 What is the value of $\left|\frac{4(-6) + 18}{4!}\right|$?
1) $\frac{1}{4}$
2) $-\frac{1}{4}$
3) 12
4) -12

23 When $x = 4$, the value of $2x^0 + x!$ is
1) 24
2) 25
3) 26
4) 28

24 If the expression $3 - 4^2 + \frac{6}{2}$ is evaluated, what would be done *last*?
1) subtracting
2) squaring
3) adding
4) dividing

25 What is the first step in simplifying the expression $(2 - 3 \times 4 + 5)^2$
1) square 5
2) add 4 and 5
3) subtract 3 from 2
4) multiply 3 by 4

26 Brett was given the problem: "Evaluate $2x^2 + 5$ when $x = 3$." Brett wrote that the answer was 41. Was Brett correct? Explain your answer.

A.N.6: Evaluating Expressions 1: Evaluate expressions involving factorial(s), absolute value(s), and exponential expression(s)
Answer Section

1 ANS: 4
$3(-3)^2 + 5(-3) + 6 = 3(9) - 15 + 6 = 27 - 15 + 6 = 12 + 6 = 18$

REF: 010015a
2 ANS: 3
$2x^3y = 2(-2)^3(3) = -48$

REF: 060807a
3 ANS: 3
$(3)(-1) - (-1)^2 = -3 - 1 = -4$

REF: 060726a
4 ANS: 3
$-4 - 3(3)^2 = -4 - 3(9) = -4 - 27 = -31$

REF: 080408a
5 ANS: 1
$-3(-4)^2(2) + 4(-4) = -96 - 16 = -112$

REF: 081113ia
6 ANS: 3
$2(2)^2 - 3(2)(-3) - 2(-3)^2 = 8 + 18 - 18 = 8$

REF: 010915a
7 ANS: 2 REF: 011110ia
8 ANS: 2
$\frac{1}{2}(4)(-2)^2 = 2(4) = 8$

REF: 080617a
9 ANS: 4
$\frac{4^2 - 4(-3)}{2} = \frac{16 + 12}{2} = \frac{28}{2} = 14$

REF: 010406a
10 ANS: 4
$-|-7| = -(+7) = -7$

REF: 010518a
11 ANS: 2 REF: 081402ia

12 ANS: 3
$\left|-5(5)+12\right| = |-13| = 13$

REF: 080923ia
13 ANS: 1
$-|a-b| = -\left|7-(-3)\right| = -|-10| = -10$

REF: 011010ia
14 ANS: 2
$|2| - |-7| = 2 - 7 = -5$

REF: 060522a
15 ANS: 2
$|-3-4| - (-3)^2 = 7 - 9 = -2$

REF: 011321ia
16 ANS: 3
$3(-3)^2 - 4|-3| + 6 = 27 - 12 + 6 = 21$

REF: 061412ia
17 ANS: 4
$5! = 5\times4\times3\times2\times1 = 120$

REF: 080107a
18 ANS: 2 REF: 060814a
19 ANS: 1
$\frac{7!}{3!} = \frac{7\times6\times5\times4\times3\times2\times1}{3\times2\times1} = 840$

REF: 080503a
20 ANS: 1
$\frac{8!}{4!} = \frac{8\times7\times6\times5\times4\times3\times2\times1}{4\times3\times2\times1} = 1{,}680$

REF: 060605a
21 ANS: 3
$6! + \frac{5!(3!)}{4!} - 10 = 720 + 5(6) - 10 = 740$

REF: 061309ia
22 ANS: 1
$\left|\frac{4(-6)+18}{4!}\right| = \left|\frac{-6}{24}\right| = \frac{1}{4}$

REF: 081220ia

23 ANS: 3

$2(4)^0 + (4)! = 2 + 24 = 26$

REF: 011421ia

24 ANS: 3

Using the acronym PEMDASLR indicates that addition and subtraction operations should be performed from left to right. Since the addition is to the right of the subtraction, the addition would be done last.

REF: 060314a

25 ANS: 4

Using the acronym PEMDASLR indicates that operations inside the expression's parentheses should be performed first. Multiplication precedes addition.

REF: 080612a

26 ANS:

No, the answer is 23. $2(3)^2 + 5 = 2(9) + 5 = 18 + 5 = 23$

REF: 060432a