

Name _____

Evaluate the exponential expression.

1) 8^2

2) 10^3

3) 9^4

4) 2^3

5) $(-11)^2$

6) $(-6)^3$

7) $(-11)^4$

8) $(-4)^3$

9) -12^2

10) -12^3

11) -5^4

12) -5^3

13) -1^3

14) -1^2

15) $(-1)^8$

16) $(-1)^{11}$

Evaluate the algebraic expression for a) $x = 4$ and
b) $x = 18$.

17) $5x^2 + 9x$

18) $7x^2 + 3x$

19) $4x^2 + 5x$

20) $2x^2 - 5x$

21) $-2x^2 - 3x$

Simplify the algebraic expression, or state that the
expression cannot be simplified.

22) $7x^2 + 8x^2$

23) $3x^2 + 9x^2$

24) $7x^7 - 9x^7$

25) $5x^8 + 6x^3$

26) $2x^7 - 7x^2$

27) $21x^2 - 21x^2$

28) $2x^5 - 7x^5$

29) $4x^3 - 8x^2$

30) $28x^2 - 28x^2$

Simplify the algebraic expression by removing
parentheses and brackets.

31) $-4(9x + 8) + 7(3x + 5)$

32) $-10(6x + 7) + 9(3x + 9)$

33) $(7y + 12) - (4y - 6)$

34) $-3(2x - 5) - 4x + 7$

$$35) 7[3(x + 1) + 5]$$

$$45) 6 \div 2(3) - 5$$

$$36) 1 - 7[3 - (5x + 1)]$$

$$46) 8^2 - 2(5) + 18 \div 3$$

$$37) (10y + 11) - (2y - 1)$$

$$47) 82 - 5 \cdot 3 + 28 \div (-7)$$

$$38) -3(2x - 6) - 4x + 7$$

$$48) (-2 - 8)(-3 + 7) - 8^2$$

$$39) 5[7(x - 4) - 2]$$

$$49) \frac{143 + 7}{3^2 - 4}$$

Use the order of operations to simplify the expression.

$$40) 1 - 4 \cdot 4$$

$$50) \frac{32(7 - 4) - 24}{3^2 - 3}$$

$$41) 90 \div 30 \cdot (-6)$$

$$51) \frac{8 \cdot (4 + 5) + 8 \cdot 6}{8 \cdot (3 - 1)}$$

$$42) 7^2 - 4 \cdot 3$$

$$52) \frac{7 + (-5)^2 + 2 \cdot 3^2}{2^2 \cdot (6 - 5)}$$

$$43) (17 + 18) \cdot (24 - 16)$$

$$44) 28 + (13 \cdot 12) - 9$$

$$53) \frac{20(-1) - (-7)(-7)}{2[-8 \div (-2 - 2)]}$$

54) $|8 - 14| \cdot -16 \div (-4)$

55) $(3 + 3)[7 + (2 + 7)]$

56) $3[-2 + 8(-8 + 5)]$

57) $3[6 + 3(2^2)]$

58) $4[2^2 + 4(6 + 2)]$

59) $22 - [5 - (3 - 7)] + (4 - 6)^3$

60) $[25 - (4 + 6) \div 2] - [1 + 24 \div 3]$

62) If a rock falls from a height of 50 meters above the ground, the height H (in meters) after x seconds can be approximated using the formula $H = 50 - 4.9x^2$. What is the height of the rock after 2 seconds?

63) The formula $C = \frac{5}{9}(F - 32)$ expresses the relationship between Fahrenheit temperature, F , and Celsius temperature, C . Use the formula to convert 41°F to its equivalent temperature on the Celsius scale, rounded to the nearest degree.

64) The winning times (in seconds) in a speed-skating event for men can be represented by the formula $T = 46.15 - 0.096x$, where x represents the year, with $x = 0$ corresponding to 1920. (For example in 1992, x would be $1992 - 1920 = 72$.) According to the formula, what was the winning time in 1969? Round to the nearest hundredth.

65) It is estimated that y , the number of items of a particular commodity (in millions) sold in the United States in year x , where x represents the number of years since 1990, is given by the formula $y = 1.74x + 3.94$. That is, $x = 0$ represents 1990, $x = 1$ represents 1991, and so on. According to the formula, how many items sold in 1995?

Solve.

61) As the relative humidity increases, the temperature seems higher than it is. The formula $T = 0.101x + 55.05$ approximates the apparent temperature for an actual temperature of 60°F , where x is the relative humidity percentage. What is the apparent temperature (to the nearest degree) for an actual temperature of 60°F and a relative humidity of 70%?

Answer Key

Testname: 01.8V01A

- 1) 64
- 2) 1000
- 3) 6561
- 4) 8
- 5) 121
- 6) -216
- 7) 14,641
- 8) -64
- 9) -144
- 10) -1728
- 11) -625
- 12) -125
- 13) -1
- 14) -1
- 15) 1
- 16) -1
- 17) a) 116 b) 1782
- 18) a) 124 b) 2322
- 19) a) 84 b) 1386
- 20) a) 12 b) 558
- 21) a) -44 b) -702
- 22) $15x^2$
- 23) $12x^2$
- 24) $-2x^7$
- 25) cannot be simplified
- 26) cannot be simplified
- 27) 0
- 28) $-5x^5$
- 29) cannot be simplified
- 30) 0
- 31) $-15x + 3$
- 32) $-33x + 11$
- 33) $3y + 18$
- 34) $-10x + 22$
- 35) $21x + 56$
- 36) $35x - 13$
- 37) $8y + 12$
- 38) $-10x + 25$
- 39) $35x - 150$
- 40) -15
- 41) -18
- 42) 37
- 43) 280
- 44) 175
- 45) 4
- 46) 60
- 47) 63
- 48) -104
- 49) 30

Answer Key

Testname: 01.8V01A

50) 12

51) $\frac{15}{2}$

52) $\frac{25}{2}$

53) $-\frac{69}{4}$

54) 24

55) 96

56) -78

57) 54

58) 144

59) 5

60) 11

61) 62°F

62) 30.4 m

63) 5°C

64) 41.45 sec

65) 12.64 million items