

Evaluate the expression using the given values.

1) $-12x + y$ $x = -3, y = 3$

A) 0

B) -9

C) -33

D) 39

1) _____

2) $\frac{|x|}{x} + \frac{|y|}{y}$ $x = 4$ and $y = -1$

A) 2

B) 1

C) -1

D) 0

2) _____

Solve the problem.3) The weekly production cost C of manufacturing x calendars is given by $C(x) = 38 + 2x$, where the variable C is in dollars. What is the cost of producing 296 calendars?

A) \$592.00

B) \$630.00

C) \$11,250.00

D) \$334.00

3) _____

Use the Distributive Property to remove the parentheses.

4) $(x - 8)(x - 9)$

A) $x^2 - 17x + 72$ B) $x^2 - 18x + 72$ C) $x^2 + 72x - 17$ D) $x^2 - 17x - 17$

4) _____

Evaluate the expression.

5) $\frac{\frac{4}{15}}{\frac{3}{7}}$

A) $\frac{28}{45}$ B) $\frac{4}{35}$ C) $\frac{35}{4}$ D) $\frac{45}{28}$

5) _____

Determine which value(s), if any, must be excluded from the domain of the variable in the expression.

6) $\frac{5x - 6}{x^2 - 4}$

A) $x = 4$ B) $x = 2, x = -2$ C) $x = \frac{6}{5}$ D) $x = 2$

6) _____

7) $\frac{x^3 + 4x^4}{x^2 + 9}$

A) $x = 0, x = -\frac{1}{4}$ B) $x = -3$ C) $x = -9$

D) none

7) _____

Simplify the expression.

8) -2^3

A) -6

B) 6

C) 8

D) -8

8) _____

9) 5^{-3}

A) $\frac{1}{15}$ B) $\frac{1}{125}$

C) 125

D) -125

9) _____

10) $(-2)^{-4}$ 10) _____
 A) $-\frac{1}{16}$ B) -16 C) 16 D) $\frac{1}{16}$

11) -4^{-2} 11) _____
 A) 16 B) $\frac{1}{8}$ C) $-\frac{1}{16}$ D) -16

12) $(5^{-1})^{-3}$ 12) _____
 A) 25 B) $\frac{1}{25}$ C) 125 D) $\frac{1}{125}$

Simplify the expression. Express the answer so that all exponents are positive. Whenever an exponent is 0 or negative, we assume that the base is not 0.

13) $(-6x^3)^{-1}$ 13) _____
 A) $-\frac{1}{216x^3}$ B) $\frac{1}{6x^3}$ C) $-\frac{1}{6x^3}$ D) $\frac{1}{216x^3}$

14) $\frac{x^{-6}y^4}{x^3y^{13}}$ 14) _____
 A) x^9y^9 B) $\frac{1}{x^9y^9}$ C) $\frac{x^9}{y^9}$ D) $\frac{y^9}{x^9}$

15) $\left(\frac{2x^{-4}}{9y^{-4}}\right)^{-1}$ 15) _____
 A) $\frac{2x^4}{9y^4}$ B) $\frac{2x^4}{9y^4}$ C) $\frac{9x^4}{2y^4}$ D) $\frac{9y^4}{2x^4}$

16) $\left(\frac{-4x^6y^{-5}}{3z^3}\right)^{-2}$ 16) _____
 A) $\frac{9y^{10}}{16x^{12}z^6}$ B) $\frac{16x^{12}}{9y^{10}z^6}$ C) $\frac{9y^{10}z^6}{16x^{12}}$ D) $\frac{9z^6}{16x^{12}y^{10}}$

Evaluate the expression using the given value of the variables.

17) $2x^3 + 4x^2 + 3x - 3$ for $x = 2$ 17) _____
 A) 35 B) 41 C) 3 D) 23

Solve.

18) What is the value of $\frac{(6666)^3}{(2222)^3}$? 18) _____
 A) $(2222)^3$ B) $(3333)^3$ C) 27 D) 54

Find the value of the expression using the given values.

19) $\sqrt{x^2} + \sqrt{y^2}$ $x = 7, y = 8$ 19) _____
A) 113 B) -1 C) 1 D) 15

Use a calculator to evaluate the expression. Round the answer to three decimal places.

20) $-(-2.38)^{-6}$ 20) _____
A) 0.006 B) -0.006 C) 181.745 D) -181.745

The lengths of the sides of a triangle are given. Determine if the triangle is a right triangle. If it is, identify the hypotenuse.

21) 10, 24, 26 21) _____
A) right triangle; 10 B) right triangle; 26
C) right triangle; 24 D) not a right triangle

Add or subtract as indicated. Express the answer as a single polynomial in standard form.

22) $(4x^6 + 8x^4 - 19) - (6x^6 + 18x^4 + 15)$ 22) _____
A) $-46x^{10}$ B) $-2x^6 - 10x^4 - 4$
C) $-2x^6 + 14x^4 - 4$ D) $-2x^6 - 10x^4 - 34$

Perform the indicated operations. Express the answer as a single polynomial in standard form.

23) $-6x^2(2x^5 + 12)$ 23) _____
A) $-12x^7 - 72x^2$ B) $-84x^2$ C) $-12x^5 - 72$ D) $-12x^7 + 12$

24) $(x - 12)(x^2 + 4x - 2)$ 24) _____
A) $x^3 - 8x^2 - 46x - 24$ B) $x^3 + 16x^2 + 50x + 24$
C) $x^3 + 16x^2 + 46x - 24$ D) $x^3 - 8x^2 - 50x + 24$

Multiply the polynomials using the FOIL method. Express the answer as a single polynomial in standard form.

25) $(x - 2y)(2x - 4y)$ 25) _____
A) $2x^2 - 8xy + 8y^2$ B) $2x^2 - 8xy - 8y^2$ C) $x^2 - 8xy - 8y^2$ D) $x^2 - 8xy + 8y^2$

26) $(5x + 7y)(5x + 12y)$ 26) _____
A) $25x^2 + 60xy + 84y^2$ B) $25x^2 + 95xy + 95y^2$
C) $25x^2 + 95xy + 84y^2$ D) $25x^2 + 35xy + 84y^2$

Multiply the polynomials. Express the answer as a single polynomial in standard form.

27) $(2x - 5)^2$ 27) _____
A) $4x^2 + 25$ B) $2x^2 + 25$ C) $4x^2 - 20x + 25$ D) $2x^2 - 20x + 25$

Find the quotient and the remainder.

28) $18x^2 + 24x - 12$ divided by $6x$ 28) _____
A) $18x + 24$; remainder -12 B) $3x + 4$; remainder -12
C) $3x - 8$; remainder 0 D) $3x^2 + 4x - 2$; remainder 0

Multiply the polynomials using the special product formulas. Express the answer as a single polynomial in standard form.

- 29) $(3x + 8y)(3x - 8y)$ 29) _____
 A) $9x^2 - 64y^2$ B) $9x^2 - 48xy - 64y^2$
 C) $9x^2 + 48xy - 64y^2$ D) $6x^2 - 16y^2$

Factor the difference of two squares.

- 30) $49x^2 - 64$ 30) _____
 A) $(49x + 1)(x - 64)$ B) $(7x - 8)^2$
 C) $(7x + 8)^2$ D) $(7x + 8)(7x - 8)$

Factor completely. If the polynomial cannot be factored, say it is prime.

- 31) $(x + 7)^2 - 16$ 31) _____
 A) $(x + 23)(x - 9)$ B) $(x - 3)(x - 11)$ C) $(x + 11)(x + 3)$ D) $x^2 + 14x + 33$

Factor the polynomial.

- 32) $x^2 + 6x - 16$ 32) _____
 A) $(x - 8)(x + 1)$ B) $(x - 8)(x + 2)$ C) $(x + 8)(x - 2)$ D) prime

Factor the polynomial by grouping.

- 33) $3x^2 + 7x + 21x + 49$ 33) _____
 A) $(3x + 7)(7x + 3)$ B) $(3x + 7)(3x + 7)$ C) $(x + 7)(3x + 7)$ D) prime

- 34) $10x^2 + 4x - 15x - 6$ 34) _____
 A) $(2x + 3)(5x - 2)$ B) $(10x - 3)(x + 2)$ C) $(10x + 3)(x - 2)$ D) $(2x - 3)(5x + 2)$

Perform the indicated operations and simplify the result. Leave the answer in factored form.

- 35) $\frac{x^2 + 9x + 20}{x^2 + 13x + 40} \cdot \frac{x^2 + 8x}{x^2 - 2x - 24}$ 35) _____
 A) $\frac{x}{x^2 + 13x + 40}$ B) $\frac{1}{x - 6}$ C) $\frac{x(x + 8)}{x - 6}$ D) $\frac{x}{x - 6}$

- 36) 36) _____

$$\frac{\frac{3x - 3}{x}}{\frac{6x - 6}{3x^2}}$$
 A) $\frac{9x^2(x - 1)}{6x(x - 1)}$ B) $\frac{2}{3x}$ C) $\frac{3x}{2}$ D) $\frac{18(x + 1)^2}{3x^3}$

- 37) $\frac{9x + 2}{2} - \frac{9x - 2}{2}$ 37) _____
 A) 0 B) $9x$ C) 2 D) 4