

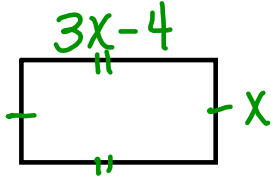
1. Jimmy is spending twelve less than double the amount of money that Jane spends on groceries. If Jane spends x amount of dollars, write an expression that represents the amount that Jimmy spends.

$$2x - 12$$

2. Ashley is 6 years less than triple her grandfather's age. What would be the expression for this?

$$3x - 6$$

3. We are building a pen for our pigs. One side is 4 less than triple the other. Write an expression for the perimeter so you know how much fencing to buy for the pigs?



$$P = + \underline{\underline{\text{all sides}}}$$

$$\begin{array}{r} 3x-4 \\ 3x-4 \\ 1x \\ 1x \\ \hline 8x-8 \end{array}$$

Aug 23-7:47 AM

4. Simplify the following

a. $(4x^3 + 1x - 6) + (x^2 + 2x + 5)$

$$4x^3 + 3x - 1 + x^2$$

$$4x^3 + x^2 + 3x - 1$$

b. $(5xy - 4x + 9y^2) - (10 - 18x + 9xy)$

$$\begin{array}{r} 5xy - 4x + 9y^2 \\ - 9xy + 18x \\ - 10 \end{array}$$

$$-4xy + 14x + 9y^2 - 10$$

Aug 23-7:48 AM

5. Multiply the following polynomials.

a. $(4x - 1)(5x + 4)$

	$4x$	-1
$5x$	$5x \cdot 4x$ $20x^2$	$5x \cdot -1$ $-5x$
$+4$	$4 \cdot 4x$ $16x$	$4 \cdot -1$ -4

$$20x^2 + 11x - 4$$

b. $x^4(5x^4 - 10x^3 + x^2 - 9x + 14)$

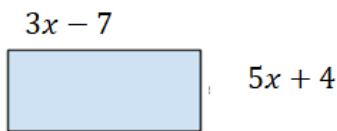
Laws of Exponents
 multiply \rightarrow Keep Base (x)
 Add the exponents

$$5x^8 - 10x^7 + 1x^6 - 9x^5 + 14x^4$$

Aug 23-7:49 AM

6. Calculate the area and perimeter of the rectangle

Area: $15x^2 - 23x - 28$
 l.w



	$3x$	-7
$5x$	$5x \cdot 3x$ $15x^2$	$5x \cdot -7$ $-35x$
$+4$	$4 \cdot 3x$ $12x$	$4 \cdot -7$ -28

Perimeter: $16x - 6$
add all sides
 $5x + 4$
 $5x + 4$
 $3x - 7$
 $3x - 7$

Aug 23-7:49 AM

7. What is the coefficient in the term $5x^4$? 5 What does coefficient mean? (explain in words)

A number multiplied by a variable

8. How many terms does the expression have: $3x^4 + 2x^3 - 5xy + 4$

What is a term? How are terms split up?

4 } a number, a variable, or a number times a variable } by your signs + / -

Aug 23-7:49 AM

9. a. Simplify $\sqrt{6}(3 - \sqrt{3})$

$$\begin{aligned} & \sqrt{6}(3) + \sqrt{6}(-\sqrt{3}) \\ & 3\sqrt{6} - 1\sqrt{18} \\ & 3\sqrt{6} - 1 \cdot 3\sqrt{2} \\ & \boxed{3\sqrt{6} - 3\sqrt{2}} \end{aligned}$$

b. Simplify $(4 - 2\sqrt{3})(7 + 6\sqrt{3})$

	$4\sqrt{1}$	$-2\sqrt{3}$
$7\sqrt{1}$	$7\sqrt{1} \cdot 4\sqrt{1}$ $28\sqrt{1}$ $= 28$	$7\sqrt{1} \cdot -2\sqrt{3}$ $-14\sqrt{3}$
$6\sqrt{3}$	$6\sqrt{3} \cdot 4\sqrt{1}$ $24\sqrt{3}$	$6\sqrt{3} \cdot -2\sqrt{3}$ $-12\sqrt{9}$ $-12 \cdot 3 = -36$

$$\boxed{-8 + 10\sqrt{3}}$$

Aug 23-7:50 AM

10. Simplify the following: $\sqrt{300x^4y^7}$

$x^4 \leftarrow$ Even so $\div 2$ and it goes on outside

$y^7 \leftarrow$ odd so -1 to leave inside then $\div 2$ to go on outside

$$\boxed{10x^2y^3\sqrt{3y}}$$

$$\begin{array}{r} 3 \overline{) 300} \\ \underline{2 100} \\ 2 \overline{) 50} \\ \underline{2 25} \\ 5 \overline{) 25} \\ \underline{5 0} \\ 5 \end{array}$$

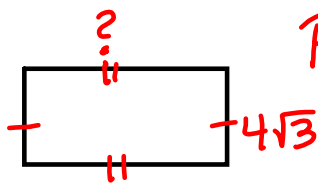
$$\sqrt{2 \cdot 2 \cdot 3 \cdot 5 \cdot 5}$$

$$2 \cdot 5 \sqrt{3}$$

$$10 \sqrt{3}$$

Aug 23-7:50 AM

11. A rectangle has a total perimeter of $\sqrt{72}$ and a side length of $4\sqrt{3}$. What is the length of the other side?



$$P = \sqrt{72} \rightarrow 6\sqrt{2}$$

$$\frac{6\sqrt{2} - 4\sqrt{3} - 4\sqrt{3}}{2}$$

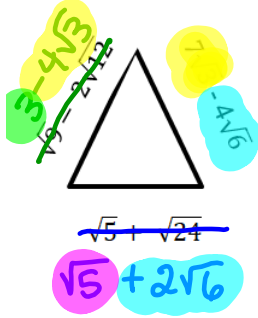
$$\frac{6\sqrt{2} - 8\sqrt{3}}{2}$$

$$\boxed{3\sqrt{2} - 4\sqrt{3}}$$

$$P \rightarrow \begin{array}{r} 4\sqrt{3} \\ 4\sqrt{3} \\ ? \\ ? \\ \hline 6\sqrt{2} \end{array}$$

Aug 23-7:51 AM

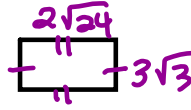
12. Find the perimeter of the following:



$$\begin{aligned} & \sqrt{9} - 2\sqrt{24} \\ & 3 - 2 \cdot 2\sqrt{3} \\ & 3 - 4\sqrt{3} \\ & \sqrt{5} + \sqrt{24} \\ & \sqrt{5} + 2\sqrt{6} \end{aligned}$$

$$3 + \sqrt{5} + 3\sqrt{3} - 2\sqrt{6}$$

13. Your grandmother has bought a rectangular table that has side lengths of $3\sqrt{3}$ on two sides and $2\sqrt{24}$ on the other two sides. What would be the area of the table your grandmother has?



$$\begin{aligned} A &= l \cdot w \\ & (2\sqrt{24})(3\sqrt{3}) \\ & 6\sqrt{72} \\ & \downarrow \\ & 6 \cdot 6\sqrt{2} \\ & \boxed{36\sqrt{2}} \end{aligned}$$

Aug 23-7:51 AM

14. Your pool is filling up at a rate of 1200 gallons/hour. What would be the speed in liters/second?

(1 gallon = 3.785 liters)

$$\left(\frac{1200 \text{ gal.}}{1 \text{ hr.}}\right) \left(\frac{1 \text{ hr.}}{60 \text{ min.}}\right) \left(\frac{1 \text{ min.}}{60 \text{ sec.}}\right) \left(\frac{3.785 \text{ L}}{1 \text{ gal.}}\right) \approx 1.26 \text{ L/sec}$$

15. You are driving at a speed of 90 meters/hour. What is your speed in inches/min? (3.3 ft = 1 m, 12 in = 1 ft)

$$\left(\frac{90 \text{ m}}{1 \text{ hr.}}\right) \left(\frac{1 \text{ hr.}}{60 \text{ min.}}\right) \left(\frac{3.3 \text{ ft}}{1 \text{ m}}\right) \left(\frac{12 \text{ in.}}{1 \text{ ft.}}\right) \approx 59.4 \text{ in./min.}$$

Aug 23-7:51 AM

16. The approximate distance from EJCHS to Walmart is 18 miles. What would be the distance centimeters?
(1 km = 0.621 miles)

$$\left(\frac{18 \cancel{\text{mi.}}}{1}\right) \left(\frac{1 \cancel{\text{km}}}{0.621 \cancel{\text{mi.}}}\right) \left(\frac{100000 \cancel{\text{cm}}}{1 \cancel{\text{km}}}\right) \approx 2,898,550.73 \text{ cm}$$

K H D m d c m

17. The distance that Mrs. Forrester walks around the classroom is 14,500 feet per week. What is the distance in km per hour? (2.54 cm = 1 in)

$$\left(\frac{14,500 \cancel{\text{ft}}}{1 \cancel{\text{wk}}}\right) \left(\frac{1 \cancel{\text{wk}}}{7 \cancel{\text{days}}}\right) \left(\frac{1 \cancel{\text{day}}}{24 \text{ hrs.}}\right) \left(\frac{12 \cancel{\text{in}}}{1 \cancel{\text{ft.}}}\right) \left(\frac{2.54 \cancel{\text{cm}}}{1 \cancel{\text{in.}}}\right) \left(\frac{1 \cancel{\text{km}}}{100,000 \cancel{\text{cm}}}\right)$$

0.026 km/hr

Aug 23-7:52 AM

18. State if the value is rational or irrational

$$4\sqrt{8} + 7 - 5\sqrt{2}$$

- a. Rational or Irrational? (circle one)
b. Explain (how do you know):

No Perfect Squares

Radical in Answer

$$4.2\sqrt{2} + 7 - 5\sqrt{2}$$

$$\underline{8\sqrt{2}} + 7 - \underline{5\sqrt{2}}$$

$$3\sqrt{2} + 7$$

19. State if the value is rational or irrational:

$$\sqrt{121} - \sqrt{25} + 4$$

- a. Rational or irrational? (circle one)
b. Explain (how do you know)

Perfect Squares

$$11 - 5 + 4$$

$$10$$

Aug 23-7:52 AM

20. The product of two rational numbers is always / sometimes / never rational. (circle the best choice)
a. Show 2 examples of this with numbers

$$(5)(8) = 40$$

$$\sqrt{4} \cdot 3 =$$
$$2 \cdot 3 = 6$$

21. The sum of two irrational numbers is always sometimes / never irrational. (circle the best choice)
a. Show 2 examples of this with numbers

$$R = \sqrt{3} - \sqrt{3}$$
$$0$$

$$I = \sqrt{2} - 5\sqrt{2}$$
$$= -3\sqrt{2}$$

Aug 23-7:53 AM

22. Use the formula given: $d = v^2 t$ where velocity, v , is cm/sec and time, t , is sec. What are the units for d ?

$$d = \left(\frac{\text{cm}}{\text{sec}}\right)^2 \left(\frac{\text{sec}}{1}\right) = \boxed{\text{cm}^2}$$

Aug 23-7:53 AM