Warmup

① Multiply

$(4x-3)(x+7)$

	$4x$	-3
x	$4x^2$	$-3x$
7	$28x$	-21

$$4x^2 + 25x - 21$$

② Simplify

$-12x^2\sqrt{200x^2y^3}$

* so

③ You walk 10 in per sec. How many miles per hour is that?

$$\frac{10\,in}{1\,sec} \cdot \frac{60\,sec}{1\,min} \cdot \frac{60\,min}{1\,hr} \cdot \frac{1\,ft}{12\,in} \cdot \frac{1\,mile}{5280\,ft}$$

0.57 miles/hr

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Dimensional Analysis/Units in Context

1.) $d = vt$
If the units for v are "cm/s"
and the units for t are "s"
What are the units for distance?

2.) $a = \dfrac{v}{t}$
If the units for v are "m/s"
and the units for t are "s"
What are the units for a?

3.) $C = kmt$
the units for C are "cal"
the units for m are "pounds"
the units for t are "minutes"
What are the units for k?

4.) The formula for density d is
$d = m/V$, where m is mass and v is
volume. If mass is measured in
kilograms and volume is measured in
cubic meters, what is the unit rate for
density?

5.) The tension caused by a wave
moving along a string is found using

the formula $T = \dfrac{mv^2}{L}$

If *m* is the mass of the string in grams,
L is the length of the string in
centimeters (cm), and *v* is the velocity
of the wave in cm per second, what is
the unit of the tension of the string, *T*?

A. gram-cm per second squared
B. cm per second squared
C. grams per cm-second squared
D. cm squared per second

6.) Convert 60 miles per hour to feet
per minute.

$\dfrac{60\,\text{miles}}{1\,\text{hr}} \cdot \dfrac{5280\,\text{ft}}{1\,\text{miles}} \cdot \dfrac{1\,\text{hr}}{60\,\text{min}}$

$\boxed{5280 \ ^{ft}/_{min}}$

7.) One gallon every five miles is how
many (dollars) per (day?)

1 hour to travel 55 miles
~~1 gallon is $3.10~~
1 driving day is 10 hours

$\dfrac{1\,\text{gal}}{5\,\text{miles}} \cdot \dfrac{\$3.10}{1\,\text{gal}} \cdot \dfrac{55\,\text{miles}}{1\,\text{hr}} \cdot \dfrac{10\,\text{hrs}}{1\,\text{day}}$

$\boxed{\$341/day}$

8.) A rectangular prism has a volume
of 2 m³, a length of 40 cm, and a width
of 50 cm. What is the height of the
prism?

9.) For every ~~12 kibs, there are 5 dats.~~
For every ~~7 dinks, there are 2 dats.~~
For every cham, there are 10 dinks.
How many kibs are there per cham?

$\dfrac{12\,\text{kibs}}{5\,\text{dats}} \cdot \dfrac{2\,\text{dats}}{7\,\text{dinks}} \cdot \dfrac{10\,\text{dinks}}{1\,\text{cham}}$

$\boxed{6.857 \ \text{kibs}/\text{cham}}$

10.) When Bryce goes to work, he
drives at an average speed of 65 miles
per hour. It takes about 1 hour and 30
minutes for Bryce to arrive at work.
His car travels about 25 miles per
gallon of gas. If gas costs $3.65 per
gallon, how much money does Bryce
spend going to work?

11.) The width of the rectangle is $\sqrt{2}$ cm but Katie has crazy fear of crazy numbers, so she estimates it to 1.41 cm. The length of the rectangle is $3\sqrt{2}$ cm but Katie estimates to 4.24 cm. What is the area of the rectangle? Calculate both decimals and radicals.

12.) The distance from Commerce to Athens is 18 miles. How long would that be in centimeters?
(1 inch = 2.54 cm)

13.) Jane noticed that her faucet was dripping. She later figured out that the rate of dripping was ~~50 drops every minute. If 20 drops equals 1 milliliter,~~ how many liters per year is the faucet leaking?

$$\frac{50 \text{ drops}}{1 \text{ min}} \cdot \frac{1 \text{ mL}}{20 \text{ drops}} = 2.5 \frac{\text{mL}}{\text{min}}$$

2.5   3 left

$$\frac{0.0025 \text{ L}}{1 \text{ min}} \cdot \frac{60 \text{ min}}{1 \text{ hr}} \cdot \frac{24 \text{ hr}}{1 \text{ day}}$$

$$\cdot \frac{365 \text{ day}}{1 \text{ yr}} = 1314 \text{ Liters/yr}$$

If you ride your bike to Athens from Commerce at a rate of 120 centimeters per hour, how long would it take you to get there?

How many gallons a year is the faucet leaking? (1 gal = 3.79 liters)

Which area of the rectangle is more precise? Why?

If you were pouring concrete for the base of a house, which answer would you want to use? Why?

Quiz today!

Phones are away in your bag. NO PHONES. PHONE=0 on quiz.

Nap, color, read, draw a picture, come up with a short story when you are done.

Work on missing homework when you are done.