Units of Measure 16.1

Overview of problems

Example Set: A

Match the units of measure:

$28\ miles\ per\ hour$	$Time$
$16\ meters/second^2$	$Length$
$78\ liters$	$Velocity$
$.03\ microseconds$	$Acceleration$
$45\ cm$	$Surface\ Area$
$109\ ft^2$	$Volume$

State if the unit of measure is standard or metric. Also, state what concept is being measured; for example- time, distance, etc.
(note: additional research maybe needed to answer a question)

1. $600\ square\ miles$
2. $189\ m/s$
3. $47\ g/l$
4. $32\ ft/\sec^2$
5. $125{,}000\ light\ years$

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Apply the formula for each problem and state the correct unit of measure for the solution.

1. $Find\ the\ volume\ of\ the\ sphere\ with\ radius\ 2\ cm.\ Volume\ of\ a\ sphere = \frac{4}{3}\pi r^3$

2. $How\ much\ force\ does\ a\ falling\ ball\ of\ 3\ kg\ have?$

   $Force = Mass\ x\ Acceleration\ \ note: acceleration = 9.8\ m/s^2$

3. $How\ fast\ in\ miles\ per\ hours\ (mph)\ did\ a\ car\ go\ if\ it\ traveled$

   $150{,}000\ feet\ in\ 20\ min?\quad Distance = Speed\ x\ Time$

4. $A\ square\ has\ an\ area\ of\ 144\ inches\ squared; what\ is\ the\ length$

   $of\ the\ side\ of\ the\ square?\quad Area\ Square = side^2$

Example Set: B

Convert the units of measure- show all work:

1. $8\ km\ is\ how\ many\ miles?$

2. $13{,}570\ seconds\ is\ how\ many\ hours?$

3. $175\ lbs\ is\ how\ many\ grams?$

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4. $5\ liters\ is\ how\ many\ gallons?$

5. $92\ mg\ is\ how\ many\ grams?$

6. $.3\ ml\ is\ how\ many\ liters?$

*Example Set: A-**ANSWER KEY***

Match the units of measure:

$28\ miles\ per\ hour$	Velocity	$Time$
$16\ meters/second^2$	Acceleration	$Length$
$78\ liters$	Volume	$Velocity$
$.03\ microseconds$	Time	$Acceleration$
$45\ cm$	Length	$Surface\ Area$
$109\ ft^2$	Surface Area	$Volume$

State if the unit of measure is standard or metric. Also, state what concept is being measured; for example- time, distance, etc.
(note: additional research maybe needed to answer a question)

1. $600\ square\ miles$ Standard/ Area or Surface Area

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2. $189\ m/s$ Metric / Velocity or Speed

3. $47\ g/l$ Metric / Density

4. $32\ ft/\sec^2$ Standard / Acceleration

5. $125{,}000\ light\ years$ Standard or Metric / Distance

Apply the formula for each problem and state the correct unit of measure for the solution.

1. *Find the volume of the sphere with radius 2 cm. Volume of a sphere* $= \frac{4}{3}\pi r^3$

$$V = \frac{32\pi}{3}\ cm^3$$

2. *How much force does a falling ball of* $3\ kg$ *have?*

$Force = Mass\ x\ Acceleration\ \ note: acceleration = 9.8\ m/s^2$

$$F = 29.4\ kg\ m/s^2\ \ Newtons$$

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3. *How fast in miles per hours (mph) did a car go if it traveled 150,000 feet in 20 min?* $Distance = Speed\ x\ Time$

   $Speed/Velocity = 86.06\ mph$

4. *A square has an area of 144 inches squared; what is the length of the side of the square?* $Area\ Square = side^2$

   $Side\ Length = 12\ inches$

*Example Set: B-**ANSWER KEY***

Convert the units of measure- show all work:

1. 8 *km is how many miles?* 4.97 *miles*
2. 13,570 *seconds is how many hours?* 3.769 *hours*
3. 175 *lbs is how many grams?* 79,378.25 *grams*
4. 5 *liters is how many gallons?* 1.319 *gallons*

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5. $92\ mg\ is\ how\ many\ grams?$ $.092\ grams$

6. $.3\ ml\ is\ how\ many\ liters?$ $.0003\ Liters$