

Name Key Hour _____

Math and Conversion Review for Ch. 1 Quiz

If you scored an 18 or higher on the Math pretest, you only need to complete #16-20. I suggest you try any of the math review that you got wrong on the pretest though!

Know the following **conversion factors**:

$1 \text{ km} = \underline{1000} \text{ m}$ $1 \text{ m} = \underline{100} \text{ cm}$ $1 \text{ in} = \underline{2.54} \text{ cm}$ $1 \text{ mile} = \underline{1609} \text{ m}$
 $1 \text{ kg} = \underline{1000} \text{ g}$ $1 \text{ kg} = \underline{2.2} \text{ lbs}$ $1 \text{ L} = \underline{1000} \text{ mL}$ $1 \text{ hour} = \underline{3600} \text{ sec}$

Put the following numbers in **scientific notation**:

454 4.54×10^2 0.000678 6.78×10^{-4}

Expand the following numbers:

3.41×10^{-3} 0.00341 8.341×10^3 8341

Perform the following **conversions**: (Show your work!)

1. 7.4 miles = _____ m $7.4 \text{ mi} \times \frac{1609 \text{ m}}{1 \text{ mi}} = \boxed{11907 \text{ m}}$

2. 165 lbs = _____ kg $165 \text{ lb} \times \frac{1 \text{ kg}}{2.2 \text{ lb}} = 75 \text{ kg}$

3. $3.2 \text{ m}^2 =$ _____ cm^2 $3.2 \text{ m}^2 \times \frac{100 \text{ cm}}{1 \text{ m}} \times \frac{100 \text{ cm}}{1 \text{ m}} = \boxed{32,000 \text{ cm}^2}$

4. 67 mph = _____ m/s $\frac{67 \text{ mi}}{\text{hr}} \times \frac{1609 \text{ m}}{1 \text{ mi}} \times \frac{1 \text{ hr}}{3600 \text{ s}} = \boxed{29.9 \approx 30 \text{ m/s}}$

5. 24 m/s = _____ mph $\frac{24 \text{ m}}{\text{s}} \times \frac{1 \text{ mi}}{1609 \text{ m}} \times \frac{3600 \text{ s}}{1 \text{ hr}} = \boxed{53.7 \text{ mph}}$

6. 5.67 ft = _____ m $5.67 \text{ ft} \times \frac{12 \text{ in}}{1 \text{ ft}} \times \frac{2.54 \text{ cm}}{1 \text{ in}} \times \frac{1 \text{ m}}{100 \text{ cm}} = \boxed{1.73 \text{ m}}$

Solve the following equations for x:

7. $\frac{4x}{10} = \frac{5}{3}$
 $50 = 12x$ $\boxed{x = 4.17}$

9. $4x^2 = 400$
 $x^2 = 100$
 $\boxed{x = 10}$

8. $\frac{1}{2} = \frac{1}{3} + \frac{1}{x}$
 $\frac{1}{2} - \frac{1}{3} = \frac{1}{x}$
 $\frac{1}{6} = \frac{1}{x}$
 $\boxed{x = 6}$

10. $\frac{8}{x} = 3a$
 $3ax = 8$
 $\boxed{x = \frac{8}{3a}}$

Graphing:

11. Graph the following points:

x	y
2	6
4	10
6	14
8	18



12. Calculate the slope of the line.

$$\frac{14-10}{6-4} = \frac{4}{2} = 2$$

13. Find the equation of the line. ($y = mx + b$ form)

$$10 = 2(4) + b$$

$$b = 2$$

$$y = 2x + 2$$

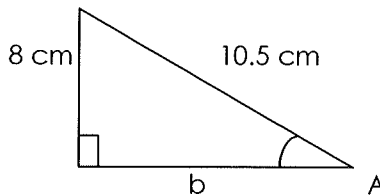
Use the **triangle** below to answer the following questions:

14. Find the length of side b.

$$a^2 + b^2 = c^2$$

$$8^2 + b^2 = 10.5^2$$

$$b = 6.8 \text{ cm}$$



15. Find angle A in degrees

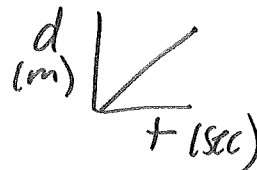
$$\sin A = \frac{8}{10.5}$$

$$A = 49.6^\circ$$

Playing With Cars Lab:

16. On the distance vs. time graph for the car that moved at constant speed:

- a. What were the units for the slope? m/s
- b. What did the slope represent? (think rise/run) speed



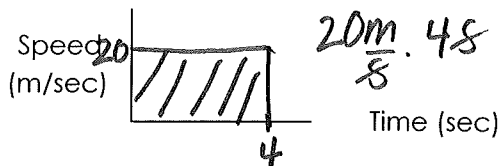
17. What is the **unit** for distance we used? m time? s speed? m/s

18. If you were to get a curved line on a distance vs. time graph, what would the car be doing?

changing speed

19. Sketch a **speed vs. time** graph for a car moving at a constant speed of 20 m/s for 4 sec.

Calculate the **area** under the graph. Determine what **unit** the area is measured in. **If you are unsure...multiply the units of the area to see what is left.**



The area is 80. The unit is m

20. Sketch a **speed vs. time** graph and put **3 lines** on it: one that represents an object moving at constant speed, one that is accelerating, and one that is decelerating (slowing down). **Label** each line!

