

AP PHYSICS 1 SUMMER MATH REVIEW

I. UNIT CONVERSIONS

Complete the following unit conversions.

(1) $4.3 \text{ kg} = \underline{\hspace{2cm}} \text{ g}$

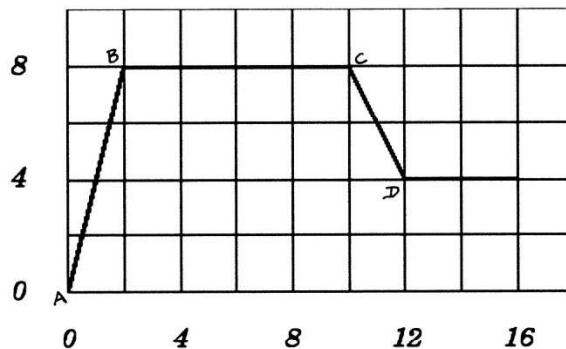
(3) $23 \text{ mm} = \underline{\hspace{2cm}} \text{ cm}$

(2) $7.52 \text{ cm} = \underline{\hspace{2cm}} \text{ m}$

(4) $1 \text{ day} = \underline{\hspace{2cm}} \text{ seconds}$

II. LINEAR GRAPHS

Find (a) the slope of the line segment and (b) the equation of the line containing the segment (in slope-intercept form) between the given pair of points.



(5) Between points A and B

(6) Between points B and C

(7) Between points C and D

III. SIMULTANEOUS EQUATIONS

Solve the following linear systems by both substitution and elimination.

(8)
$$\begin{aligned} -4x - 3y &= -26 \\ 5x + y &= 27 \end{aligned}$$

(9)
$$\begin{aligned} 6x + 8y &= 16 \\ -4x - 7y &= -19 \end{aligned}$$

IV. QUADRATIC EQUATIONS

Solve the following quadratic equations for x.

(10) $x^2 - 5x - 24 = 0$

(12) $-8x^2 + 46x - 30 = 0$

(11) $16x^2 = -48x - 36$

(13) $2x^2 + 6x - 7 = 0$

(14) The height of a ball thrown upwards, h , in meters, after time, t , in seconds, is given by the function:

$$h(t) = 14t - 5t^2$$

(a) How many seconds does it take for the ball to reach its maximum height?

(b) What is its maximum height in meters?

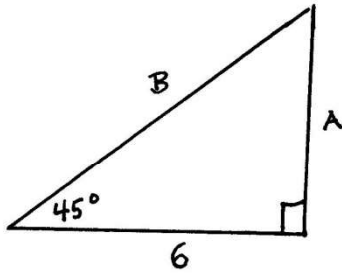
(c) At what TWO times is the ball at a height of 6.6 meters?

(d) Sketch a graph that shows the height of the ball as a function of time.

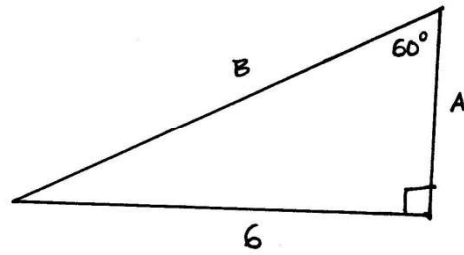
V. RIGHT TRIANGLES AND TRIGONOMETRY

(NOTE: Triangles are NOT drawn to scale!)

Find the EXACT values of sides A and B in the triangles below.

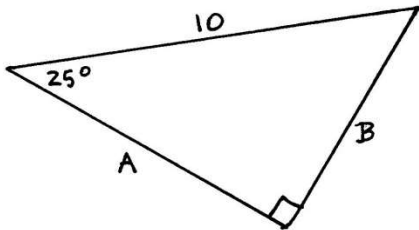


(15)

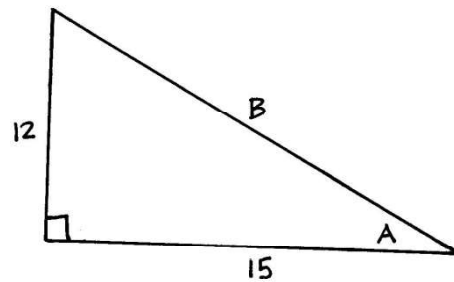


(16)

Find side or angle A and B to two decimal places in the triangles below.



(17)



(18)

VI. LITERAL EQUATIONS

Solve the algebraic equations for the given variable, stating your answer in simplest form.

(19) $v = \frac{d}{t}$ for t

(20) $T = 2\pi\sqrt{\frac{L}{g}}$ for g

(21) $x = sv + \frac{1}{2}gs^2$ for s