

Key

Physics Skills I: Mathematics Assessment

Name: _____

Date: _____ Period: _____

Write the following numbers in scientific notation:

1. 156.90	1.5690×10^2
2. 12 000	1.2×10^4
3. 0.0345	3.45×10^{-2}
4. 0.008 90	8.90×10^{-3}

Expand the following numbers

5. 1.23×10^6	1230 000
6. 2.5×10^{-3}	.0025
7. 1.54×10^4	15400
8. 5.67×10^{-1}	.567

Solve the following and put your answer in scientific notation:

9. $\frac{6.6 \times 10^{-8}}{3.3 \times 10^{-4}}$	2×10^{-4}
10. $\frac{7.4 \times 10^{10}}{3.7 \times 10^3}$	2×10^7
11. $\frac{2.5 \times 10^8}{7.5 \times 10^2}$	3.33×10^5
12. $(2.67 \times 10^{-3}) - (9.5 \times 10^{-4})$	1.72×10^{-3}
13. $(1.56 \times 10^{-7}) + (2.43 \times 10^{-8})$	1.803×10^{-7}
14. $(2.5 \times 10^{-6}) \times (3.0 \times 10^{-7})$	7.5×10^{-13}
15. $(1.2 \times 10^{-9}) \times (1.2 \times 10^{-7})$	1.44×10^{-16}
16. $(2.3 \times 10^{-4}) + (2.0 \times 10^{-3})$	2.23×10^{-3}

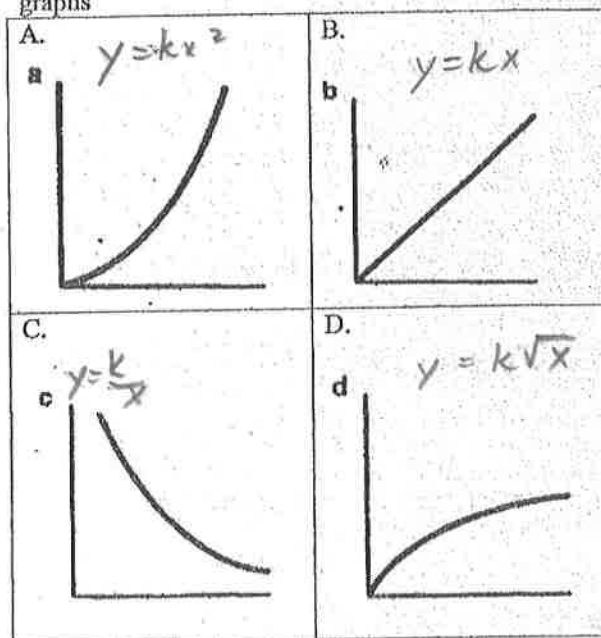
Solve for X in the following problems:

17. $\frac{3x}{y} = \frac{6g}{b}$	$x = \frac{6gy}{3b}$
18. $d = \frac{x}{t}$	$x = dt$
19. $\frac{2x^2}{3} = dg$	$x = \sqrt{\frac{3dg}{2}}$
20. $\frac{2\sqrt{x}}{c} = y$	$x = \left(\frac{yc}{2}\right)^2$

Make the following conversions:

21. 4008 g = _____ mg	4008000 mg
22. 48 mL = _____ L	.048 L
23. 239 mm = _____ cm	23.9 cm
24. 38 kg = _____ mg	38000000 mg

Answer the questions that refer to the following graphs



25. Which graph represents an inverse relationship?	C
26. Which of the graphs could have the equation $y = kw^2$?	A

SOLVING EQUATIONS WORKSHEET

SOLVE EACH EXPRESSION FOR THE VARIABLE INDICATED.

1. $D = \frac{m}{v}$ for v D and m

2. $v = \frac{s}{t}$ for s v and t

3. $v_f = v_o + at$ for a

4. $V = IR$ for R

5. $F = ma$ for m

6. $F = \frac{mv^2}{R}$ for v

7. $f = \frac{1}{T}$ for T

8. $n\lambda = d \frac{x}{L}$ for x

9. $E = \frac{1}{2}mv^2$ for m

10. $m_1v_1 = m_2v_2$ for v_2

11. $\frac{1}{R_T} = \frac{1}{R_1} + \frac{1}{R_2}$ for R_T

12. $P = I^2R$ for I

13. $C = 2\pi R$ for R

14. $\frac{P_1V_1}{T_1} = \frac{P_2V_2}{T_2}$ for T_2

I and R

m and a

F and v

f and T

n and L

m and E

m_1 and v_1

$$R_1R_2 = R_2R_T + R_1R_T$$

$$R_1R_2 = R_T(R_1 + R_2)$$

I and P

R and C

P_1 and T_1

Answers

$$v = \frac{m}{D}$$

$$s = v \cdot t$$

$$a = \frac{v_f - v_o}{t}$$

$$R = \frac{V}{I}$$

$$m = \frac{F}{a}$$

$$v = \sqrt{\frac{FR}{m}}$$

$$T = \frac{1}{f}$$

$$x = \frac{n\lambda L}{d}$$

$$m = \frac{2E}{v^2}$$

$$v_2 = \frac{m_1v_1}{m_2}$$

$$\frac{R_1R_2}{R_1 + R_2}$$

$$I = \sqrt{\frac{P}{R}}$$

$$R = \frac{C}{2\pi}$$

$$T_2 = \frac{P_2V_2T_1}{P_1V_1}$$

Name Key

Dimensional Analysis Review

Convert the following using dimensional analysis:

- 1) 3,400,400 grams to Gigagrams

$$\frac{3400400g}{1} \times \frac{1Gg}{10^9g} = .0034004Gg$$

- 2) 6,200 mm³ to km³

$$\frac{6200mm^3}{1} \times \frac{1m^3}{1000^3mm^3} \times \frac{1km^3}{1000^3m^3} = .0062 \times 10^{-15} km^3$$

- 3) 0.000056 liters to microliters

$$\frac{.000056L}{1} \times \frac{10^6\mu L}{1L} = 56\mu L$$

- 4) 48 hours to seconds

$$\frac{48hr}{1} \times \frac{60min}{1hr} \times \frac{60s}{1min} = 172800s$$

- 5) 98,000cm to Megameters

$$\frac{98000cm}{1} \times \frac{1m}{100cm} \times \frac{1Mm}{1000000m} = .00098Mm$$

- 6) 19.3 km/hr to mi/min

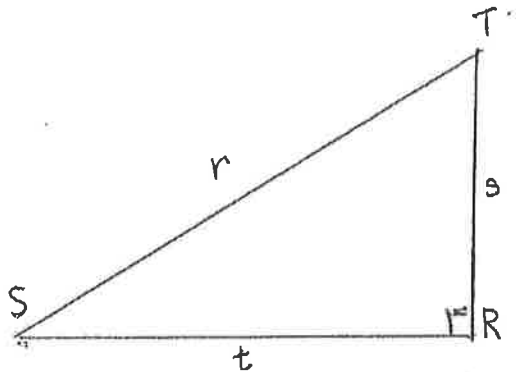
$$\frac{19.3km}{hr} \times \frac{1hr}{60min} \times \frac{.62mi}{1km} = .199 \frac{mi}{min}$$

- 7) 38.01 cm³ to kL

$$\frac{38.01cm^3}{1} \times \frac{1mL}{1cm^3} \times \frac{1L}{1000mL} \times \frac{1kL}{1000L} = 3.801 \times 10^{-5} kL$$

NAME _____

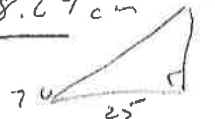
Solve right triangle RST, using the given information. Show all work on notebook paper.



1. $\angle S = 32^\circ$ $r = 43$ m
 $\angle R = 90^\circ$ $\angle T = 58^\circ$ $s = 22.79$ m
 $t = 36.47$ m



2. $\angle S = 70^\circ$ $t = 25$ cm
 $\angle T = 20^\circ$ $r = 73.1$ cm $s = 68.69$ cm



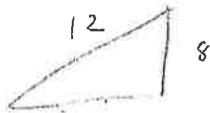
3. $\angle T = 60^\circ$ $s = 20$ km
 $\angle S = 30^\circ$ $r = 40$ $t = 34.64$



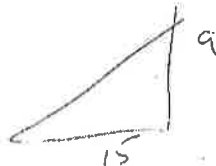
4. $\angle T = 25^\circ$ $r = 16$ m
 $\angle S = 65^\circ$ $s = 14.5$ m $t = 6.76$ m



5. $r = 12$ cm, $t = 8$ cm
 $\angle S = 41.81^\circ$ $\angle T = 48.19^\circ$ $s = 8.94$ cm

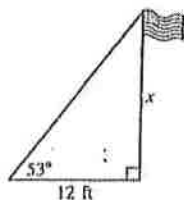


6. $t = 15$ m $s = 9$ m
 $\angle S = 30.96^\circ$ $\angle T = 59.04^\circ$ $r = 17.49$ m



$t = s \cdot \frac{9}{15}$

13. From a point on the ground 12 ft from the base of a flagpole, the angle of elevation of the top of the pole measures 53° . How tall is the flagpole? 16 ft



14. From an airplane at an altitude of 1200 m, the angle of depression of a rock on the ground measures 28° . Find the distance from the plane to the rock. 2800 m

