Name_____ Date_____Time_____

Scientific calculators are allowed for this test. Show all work. Attach additional pages if necessary clearly labeling problems.

Physics Math Evaluation

I. Significant Digits - Use arithmetic and round the answers to the following problems to the correct number of significant figures.

1. How many significant figures are in 206.57?

2. How many significant figures are in 14.050?

3. How many significant figures are in 36,700?

4. How many significant figures are in 0.076?

5. How many significant figures are in 103,000?

6 How many significant figures are in 0.034000?

7. Calculate and answer with correct significant digits. 103.45 – 97.043 =

8. Calculate and answer with correct significant digits. 24.05 x 1.36 =

II. Scientific Notation - Write the following answers in proper scientific notation.

9. 2416.05×10^{-6}

10. 0.00748×10^{13}

11. $\dfrac{(145.03\times10^{-3})(2400)}{(2175\times10^{-2})(0.004\times10^{6})}$

III. Unit Conversion - Use unit multipliers to convert the following.

12. 15.5 miles to meters.

13. 35.8 cubic feet to cubic meters

IV. Solve for the unknown.

14. Solve for x: $2x + 4 = 15 - 3xy$

15. Solve for n: $mv^2 = \frac{2gmn}{r^2}$

Roses exceeded the number of lilies by 10. The number of roses was 5 less than 6 times the number of lilies. How many of each were there?

16.) Roses:

17.) Lilies:

V. Simultaneous Equations - solve the following systems of equations.

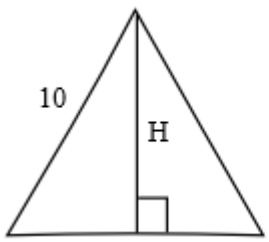
18. $6y - 4x = 12$
$2y + 2x = -2$

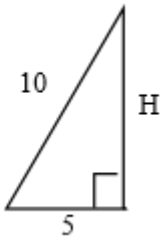
19. $2y - 4x = 4$
$2y = -6$

20. $6x + 4y = -6$
$8x - 6y = 26$

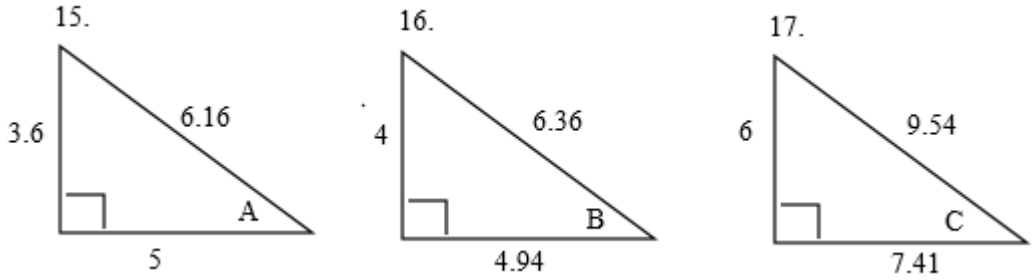
VI. Trigonometry.

21. Use the Pythagorean theorem to solve for the altitude of an equilateral triangle with sides of 10 units.



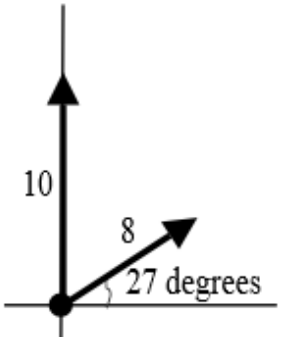


22. For these three triangles, find sin A, cos B, and tan C to two decimal places.

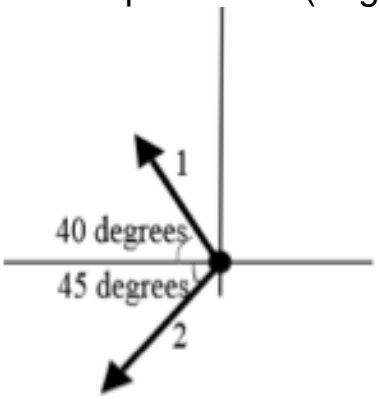


VII. Vector addition.

23. A 10-newton and an 8-newton force act on a point as shown. Find the resultant force stated in polar form (or give the magnitude and angle of the resultant vector).



24. A 1-newton and a 2-newton force act on a point as shown. Find the resultant force stated in polar form (or give the magnitude and angle of the resultant vector).



25. A 5-newton and an 8-newton force act on a point as shown. Find the resultant force stated in polar form (or give the magnitude and angle of the resultant vector).