

## Physics Summer Assignment and Class Supply List

*Greetings Students and Welcome to Physics !*

**To get us started**, the Summer assignment is comprised of a Math Review Packet.

This assignment is due on the **First Day of Class** and will count as a Quiz Grade.

The Westlake Honor Code is in effect for this assignment.

Please govern yourselves accordingly.

This summer assignment will review a great deal of the prerequisite knowledge expected of you. Although this is a Conceptual Based Course, Math skills are still an important part of

what is expected in the class. Use a book if you need to,

but really this is all stuff you already know how to do (basic math skills).

It is VERY important that this assignment be completed individually.

### **Be sure to bring with you the First Day of Class these Supplies:**

1 composition notebook for labs

2 inch 3 ring binder

Calculator

Notebook Paper

Dividers

Highlighters

Pencils

Erasers

NAME \_\_\_\_\_

The packet will be collected and graded by the teacher to assess the student's efforts to recall this information. Be sure to **SHOW ALL WORK** to receive credit.

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## I. Order of Operations (PEMDOAS)

- **P**arenthesis and other grouping symbols.
- **E**xponential expressions.
- **M**ultiplication, **D**ivision, & taking the **O**pposite.
- **A**ddition & **S**ubtraction.

Tutorial:

<http://www.regentsprep.org/Regents/Math/orderop/Lorder.htm>

<http://www.math.com/school/subject2/lessons/S2U1L2GL.html>

Simplify each numerical expression. Show all work! Only use a calculator to check.

1)  $6 + 2 \times 8 - 12 + 9 \div 3$

2)  $25 - (2^3 + 5 \times 2 - 3)$

3) 
$$\frac{-2 \cdot (-30) + 0.5 \cdot 20}{4^2 - 6}$$

4) 
$$\frac{15 - [8 - (2 + 5)]}{18 - 5^2}$$

## II. Evaluating Algebraic Expressions

To evaluate an algebraic expression:

- Substitute the given value(s) of the variable(s).
- Use order of operations to find the value of the resulting numerical expression.

Tutorials:

<http://www.math.com/school/subject2/lessons/S2U2L3GL.html>

<http://www.purplemath.com/modules/evaluate.htm>

Evaluate.

1)  $x \left( \frac{y}{2} + 3z^2 \right) - 2x$  if  $x = \frac{1}{2}$ ,  $y = 4$ ,  $z = -2$

2)  $12a - 4a^2 + 7a^3$  if  $a = -3$

3)  $\frac{-b + \sqrt{b^2 - 4ac}}{2a}$  if  $a = 1$ ,  $b = -4$ ,  $c = -21$

4)  $1.2(3)^x$  if  $x = 3$

5)  $\frac{3(x+y) - 2(x-y)}{5x+y}$  if  $x = 3$  and  $y = 4$

6)  $2 \left( \frac{1}{3} \right)^x$  if  $x = 2$

7)  $A = P \left( 1 + \frac{r}{n} \right)^{nt}$  if  $P = 650$ ,  $r = 6\%$ ,  $n = 2$ ,  $t = 15$

8) If  $k \odot n = k^3 - 3n$ ,

then evaluate  $7 \odot 5$

### III. Simplifying Radicals

An expression under a radical sign is in simplest radical form when:

- 1) there is no integer under the radical sign with a perfect square factor,
- 2) there are no fractions under the radical sign,
- 3) there are no radicals in the denominator

Tutorials:

<http://www.regentsprep.org/Regents/Math/radicals/Lsimplify.htm>

[http://www.freemathhelp.com/Lessons/Algebra\\_1\\_Simplifying\\_Radicals\\_BB.htm](http://www.freemathhelp.com/Lessons/Algebra_1_Simplifying_Radicals_BB.htm)

Express the following in simplest radical form.

1)  $\sqrt{50}$

2)  $\sqrt{24}$

3)  $\sqrt{192}$

4)  $\sqrt{169}$

5)  $\sqrt{147}$

6)  $\sqrt{\frac{13}{49}}$

7)  $\sqrt{\frac{6}{27}}$

8)  $\frac{3}{\sqrt{6}}$

### IV. Solving Linear Equations

To solve linear equations, first simplify both sides of the equation. If the equation contains fractions, multiply the equation by the LCD to clear the equation of fractions. Use the addition and subtraction properties of equality to get variables on one side and constants on the other side of the equal sign. Use the multiplication and division properties of equality to solve for the variable. Express all answers as fractions in lowest terms.

Tutorials:

Solving Linear Equations: <http://www.purplemath.com/modules/solvein.htm>

Solving Equations: <http://www.regentsprep.org/Regents/Math/solveq/LSolveEq.htm>

Examples:

a)  $3(x + 5) + 4(x + 2) = 21$

$$3x + 15 + 4x + 8 = 21$$

$$7x + 23 = 21$$

$$7x = -2$$

$$x = -\frac{2}{7}$$

b)  $2(5x - 4) - 10x = 6x + 3(2x - 5)$

$$10x - 8 - 10x = 6x + 6x - 15$$

$$-8 = 12x - 15$$

$$7 = 12x$$

$$\frac{7}{12} = x$$

c)  $\frac{2}{3}x + 5 = 6x - \frac{3}{4}$

$$12\left(\frac{2}{3}x + 5 = 6x - \frac{3}{4}\right)$$

$$8x + 60 = 72x - 9$$

$$69 = 64x$$

$$\frac{69}{64} = x$$

Solve for the unknown variable:

1)  $3n + 1 = 7n - 5$

2)  $2[x + 3(x - 1)] = 18$

$$3) \quad 6(y + 2) - 4 = -10$$

$$4) \quad 2x^2 = 50$$

$$5) \quad 5 + 2(k + 4) = 5(k - 3) + 10$$

$$6) \quad 6 + 2x(x - 3) = 2x^2$$

$$7) \quad \frac{2}{3}x - 18 = \frac{x}{6}$$

$$8) \quad \frac{x - 2}{3} = \frac{2x + 1}{4}$$