Name: _____

Physics 9 Math Readiness Summer Packet

Basic Multiplying & Dividing. Evaluate.

www.khanacademy.org/math/arithmetic/arith-review-negative-numbers/arith-review-mult-divide-negatives/v/multiplying-positive-and-negative-numbers

1. $(-2)(-4) =$ 　　　　　2.) $15/3 =$ 　　　　　3.) $8(-1) =$ 　4.) $-21/(-7) =$

5.) $26(-12) =$ 　　　　　6.) $-300/6 =$ 　　　　　7.) $(-73)1 =$ 　　　　8.) $-72/-9 =$

9.) $7(3) =$ 　　　　　10.) $0/-20 =$

Percents. Read the word problem then solve to find the correct percentage.

www.khanacademy.org/math/pre-algebra/pre-algebra-ratios-rates/pre-algebra-percent-problems/v/finding-percentages-example

11.) Dean ordered a set of beads. He received 70 beads, and 10% of them were orange. How many orange beads did Dean receive?

12.) The art club had an election to select a president. 9 out of the 12 members of the art club voted in the election. What percentage of the members voted?

13.) A school assembly had 30 students in attendance, and 20% of them were first-graders. How many first-graders were at the assembly?

14.) Brenda's Diner sold 10 milkshakes last week. 40% of the milkshakes had whipped cream on top. How many milkshakes with whipped cream were sold?

15.) At the sewing store, Ava bought a bag of mixed buttons. She got 21 buttons in all. 21 of the buttons were large. What percentage of the buttons were large?

16.) Ben earns $12,800 a year. About 15% is taken out for taxes. How much is taken out for taxes?

17.) What percentage of 80 is 50? 　　　　　18.) 20 is what percentage of 25?

19.) What is 60% of 0? 　　　　　20.) Find 10% of the number 50.

Integers. Evaluate each expression.

21.) $6 + -12 + -2 =$

22.) $3 - -13 =$

23.) _____ $\times (-8) = 32$

24.) $-190 \div 2 =$

25.) $(-10) \div$ ___ $= 5$

26.) $-16 - -27 =$

27.) __ $\times (-9) = (-54)$

28.) $-60 \div -12 =$

29.) $8 + 15 + 14 =$

30.) $-5 - 8 =$

31.) $-5 \times 5 =$

32.) $-4 \times -9 =$

Exponents. Evaluate each expression

33.) $10^3 =$

34.) $10^{-3} =$

35.) $(1/2)^5 =$

36.) $10^9 =$

37.) $1^0 =$

Write the following expressions using exponents.

38.) $45 \times 45 \times 45 \times 45 =$

39.) $(-0.7) \times (-0.7) \times (-0.7) \times (-0.7) \times (-0.7) \times (-0.7) \times (-0.7) \times (-0.7) =$

Evaluate.

40.) $10^4 + 0^{12} =$

41.) $2^6 \div 4^2 =$

42.) $0^7 - 1^{15} =$

43.) $9^3 \div 18 =$

Measurement Conversions. Convert.

44.) 37 cm = _____ mm

45.) 20 m = _____ cm

46.) 34 m = _____ mm

47.) 20 m = _____ km

48.) 29 km = _____ m

49.) 36 km = _____ cm

50.) 100 g = _____ kg

51.) 24 kg = _____ g

52.) 8.3 g = _____ kg

Metric System. Answer each.

53.) The metric unit of measurement for mass is _____.

54.) The metric unit of measurement for weight is _____.

55.) The decimal equivalent for a meter is _____.

56.) The decimal equivalent for a centimeter is _____.

57.) When you move the decimal point two places to the left to convert a metric unit, it is the same as _____ the measurement by 100.

58.) When you move the decimal point two places to the right to convert a metric unit, it is the same as _____ the measurement by 100.

Scientific Notation. Convert the following numbers into scientific notation.

59.) 3,400 = _____   60.) 0.000023 = _____   61.) 4.50 = _____

62.) 1,000,000 = _____   63.) 0.00671 = _____

Convert the following numbers into standard notation.

64.) 2.30×10^4 = _____   65.) 1.76×10^3 = _____

66.) 1.901×10^{-7} = _____   67.) 1.76×10^0 = _____

68.) 5.40×10^1 = _____

Word Problems. Solve the following word problems using the equation. *(W=F X d);*
W=Work unit of measure joules (J); F=Force unit of measure Newton (N); D=distance unit of measure meters (m)

69.) A book weighing 1.0 newton is lifted 2 meters. How much work was done?

70.) A force of 15 newtons is used to push a box along the floor a distance of 3 meters. How much work was done?

71.) It took 50 joules to push a chair 5 meters across the floor. With what force was the chair pushed?

72.) A force of 100 newtons was necessary to lift a rock. A total of 150 joules of work was done. How far was the rock lifted?

(P=W/t); P=Power unit of measure Watts (W); W=*Work unit of measure joules (J); t=time unit of measure seconds (s)*

73.) A set of pulleys is used to lift a piano weighing 1,000 newtons. The piano is lifted 3 meters in 60 seconds. How much power is used?

74.) How much work is done using a 500-watt microwave over for 5 minutes?

Factoring and Distributing. Simplify by factoring or distributing.
www.khanacademy.org/math/pre-algebra/pre-algebra-equations-expressions

75.) $2(x + 3) =$ 76.) $2(x + 3 + y) =$ 77.) $-5(2x - 3) =$

78.) $-5(-8w + p) =$ 79.) $20 + 32w=$ 80.) $84 + 36z=$

81.) $(2x - 6)(5x + 7)$ 82.) $(y - 10)(4y + 2)=$

Solving One Step Equations. Solve each word problem. A linear equation is of the form y=mx+b
Use the distance formula to solve 83-86; d = vt, where d is the distance traveled, v is the velocity and t is the time.
www.khanacademy.org/math/algebra/one-variable-linear-equations/alg1-one-step-add-sub-equations/v/adding-and-subtracting-the-same-thing-from-both-sides

83.) A car travels at 40 km/hr for 2 hours and at 55 km/hr for 2 hours. How far has the car traveled? What is its average velocity?

84.) How long will it take an airplane to travel 1,250 kilometers if it is traveling at 150 km/hr?

85.) A car is traveling at 5 m/s. How far has it gone in 12 seconds?

86.) A train travels 600 kilometers in 1 hour. What is the train's velocity in meters/second?

87.) There were 32 students in Jaden's class eating lunch. Then, more students joined Jaden's class. Now there are 86 total students eating lunch. How many students joined Jaden's class?

88.) Kari, Katelynn, and Morgan went out for dinner and split the bill evenly. The total bill was $46.68. How much did each pay?

Fractions (adding, subtracting, multiplying and dividing). Evaluate each.
www.khanacademy.org/math/pre-algebra/pre-algebra-fractions

89.) 6/12 + 2/10=   90.) 4/8 + 3/4 =   91.) 1/2 X 2/5 =   92.) 1¼X 3⅚=

93.) 1/4 / 9/10 =   94.) 8/10 / 2/5 =   95.) 12/25 - 11/25 =   96.) 1⅜- ⅞ =

Order of Operations. Evaluate each.
Remember, PEMDAS (Please Excuse My Dear Aunt Sally) stands for: Parentheses Exponents Multiplication Division Addition Subtraction
www.khanacademy.org/math/pre-algebra/pre-algebra-arith-prop/pre-algebra-order-of-operations/v/more-complicated-order-of-operations-example

97.) $14 + 18 \div 2 \times 18 - 7$ 2. 15 x 18 + 12 ÷ 3 + 9 =   98.) $15 \times 18 + 12 \div 3 + 9 =$

99.) $(11 + 42 - 5) \div (11 - 4) =$ 100.) $(10 + 59 - 3^2) \div (24 - 4) =$

Basic Graphing. Graph the following sets of data on graph paper: Example for #1 (X=0, Y=0); (X=1, Y=2); (X=2, Y=4) go across both rows until all seven are graphed then go to #2 and repeat. You will need to plot the ordered pairs (x,y) from the provided information for example (0,0) (1,2) (2,4). These must be completed on graph paper.

www.khanacademy.org/math/basic-geo/basic-geo-coord-plane/coordinate-plane-4-quad/v/plot-ordered-pairs

101.)   X = {0, 1, 2, 3, 4, 5, 6}   y = {0, 2, 4, 6, 8, 10, 12}

102.)   X = {0, 1, 2, 3, 4, 5, 6},   y = {0, 3, 6, 9, 12, 15, 18}

103.)   X = {0, 1, 2, 3, 4, 5, 6},   y = {0, 1, 4, 9, 16, 25, 36}

104.)   X = {0, 1, 2, 3, 4, 5, 6, 7},   y = {6, 4, 2, 0, 2, 4, 6, 8}

105).   X = {0, 1, 2, 3, 4, 5, 6},   y = {500, 250, 130, 62, 29, 15, 6}

Linear Equations. A linear equation is of the form $y = mx + b$. *In physics an example is the distance formula, d = vt, where d is the distance traveled, v is the velocity and t is the time.*
www.khanacademy.org/math/in-in-grade-9-ncert/in-in-chapter-4-linear-equations-in-two-variables/in-in-graph-of-a-linear-equation-in-two-variables/v/graphs-of-linear-equations

Identify the slope of the line and the y-intercept of each.
106.) $y = 3x + 4$ 107.) $y = -2x + 8$ 108.) $y = \frac{1}{2} x$

109.) $y = -\frac{3}{4}x - 1$ 110.) $y = x + 5$