

SUMMER HOMEWORK: MATH! MATH!

Directions: WITHOUT THE USE OF CALCULATORS, do the math below. When needed, the appropriate equations are provided. YOU MUST SHOW ALL OF YOUR WORK! If no work is provided, no points will be given. Do not leave answers in fractions. Convert to decimals.

Part One:

1) $\frac{10}{1000}$

2) $\frac{50}{1000}$

3) $\frac{800}{10000}$

4) $\frac{0.9}{1000}$

5) $\frac{100}{10000}$

6) $\frac{0.09}{1000}$

7) $\frac{0.008}{1000}$

8) $\frac{20}{1000}$

9) $\frac{4000}{1000}$

10) $\frac{32}{1000}$

For questions #11-20, convert the answers from questions #1-10 into percents. Again, show your work and you cannot use calculators!

11)

12)

13)

14)

15)

16)

17)

18)

19)

20)

Part Two: Doubling Times

To calculate how long it takes a population to double, use the equation:

DT (doubling time) = $70 / r$ where r is the growth rate of the population (in a percent...do not convert to a decimal). Example: The doubling time of a population with a 2% growth rate is $70/2\% = 35$ years.

For problems #21-32 the growth rates are given in percent for the populations. Calculate how long it will take the population to double. **SHOW ALL WORK AND NO CALCULATORS!**

21) 2 %

22) 4 %

23) 8 %

24) 10 %

25) 1.5 %

26) 3 %

27) 0.5 %

28) 3.5 %

29) 1 %

30) 10 %

31) 9 %

32) 5 %

Part Three: Energy Conversions

Energy will be tested on the AP test. It is important that you know how to convert between kilowatts and megawatts. For this, use

$$1 \text{ MW (megawatt)} = 1,000 \text{ kW (kilowatts)}$$

In case you do not know, a watt is a measure of how much power (energy) an item produces. Your electricity bill comes in kilowatts.

For problems #33-40 megawatts are given. Please convert megawatts into kilowatts. **SHOW YOUR WORK AND NO CALCULATORS!**

33) 2 MW

34) 40 MW

35) 10 MW

36) 35 MW

37) 50 MW

38) 4.5 MW

39) 67 MW

40) 21 MW