

## 8<sup>th</sup> Grade Assignment – Week #19

Calculator Rules! Now that you have a calculator, you need to make sure you are using it wisely.

Here are some important rules for using your calculator:

- **Rule #1:** Think first, then use the calculator. Don't just blindly put numbers into the calculator. Often when you just put something into a calculator, it will give you an answer, but if you aren't thinking about what you are doing, then you won't learn anything.
- **Rule #2:** Estimate before hitting the "=" button. After putting numbers into the calculator, just before you hit "=", pause and ask yourself: "What do I think the answer will be?" Then hit "=" and look at the answer. How close were you? Ask yourself: "Does the answer make sense?" This will help you learn.
- **Rule #3:** Don't use the calculator for a problem that you can do in your head easily. For example, don't use a calculator for  $7 \times 100$ .
- **Rule #4:** If you choose to use a calculator to do a certain calculation, then you should write down what you put into the calculator, so that later, if necessary, you can look at it and understand what you did.
- **Rule #5:** Learn how to use the memory feature of your calculator. You should never have to write down the calculator's result of a calculation, and then type it back into the calculator later.

### Individual Work

- Percents & Growth **Practice Sheet #4:** Do as much as you can.

### Group Assignments:

*For Tuesday:*

**This is a very important assignment!!!! Make sure you finish all of it!**

Percents & Growth **Group Sheet #3.** Use your calculator only when necessary!

In your tutorial session you will discuss this question (and more): *What have you learned from the results of this worksheet?*

*For Thursday:* **Puzzle!**

A clever man says to a clever girl, "I have three daughters. The product of their ages is 72, and the sum of their ages is the same as your age." The girl sits down and thinks about it. After a while she says, "I still need more information." "OK," says the man. "My oldest daughter is shorter than you." Then the girl quickly and correctly gives the ages of the man's three daughters.

What is the age of each daughter?

# Percents & Growth – Group Sheet #3

Use the *Growth Rate Table* to solve each problem.

- 1) Ruth put \$1000 into a savings account at 3.5% APR. What will her balance be...
  - a) After 10 years?
  - b) After 20 years?
  - c) After 40 years?
  - d) After 80 years?
  - e) Looking at the above answers, circle the correct answer below.  
If we double the amount of time that the money is in the bank, then the amount of interest earned...
    - is less than doubled.*
    - is exactly doubled.*
    - is more than doubled.*
- 2) Karen puts \$10 into an investment account and makes a 20% return annually. How much money will she have...
  - a) After 10 years?
  - b) After 40 years?
  - c) After 80 years?
- 3) A business is growing by 10% per year. It now has 100 customers. At this rate, how many customers will it have...
  - a) In 5 years?
  - b) In 10 years?
  - c) In 50 years?
  - d) About how long will it take for there to be five times as many customers?

- 4) A business is growing by 50% per year. It now has 100 customers. At this rate, how many customers will it have...
  - a) In 5 years?
  - b) In 10 years?
  - c) In 50 years?
  - d) About how long will it take for there to be five times as many customers?
- 5) The population of a country is currently about 100 million and is increasing by 2% per year. What will its population be...
  - a) In 10 years?
  - b) In 50 years?
  - c) In 100 years?
  - d) About how long will it take for the population to increase by 48%?
- 6) The population of a country is currently about 100 million and is increasing by 4% per year. What will its population be...
  - a) In 10 years?
  - b) In 50 years?
  - c) In 100 years?
  - d) About how long will it take for the population to increase by 48%?

- 7) Jeff has a credit card debt of \$100. If he neglects paying off any of his account, and he is charged 10% APR, then how much will his debt be...
  - a) After 5 years?
  - b) After 10 years?
  - c) After 50 years?
- 8) **Use the Rule of 72 to quickly answer each.**
  - a) How long does it take for your money to double in a savings account at 2% APR?
  - b) If a town doubles its population in 20 years, what is the average annual growth rate?
- 9) **Use a calculator to calculate each as quickly as possible. Write down what you typed into your calculator.**
  - a) 3850 up to 4543 is what percentage increase?
  - b) 584 up to 803 is what percentage increase?
  - c) 36580 down to 34751 is what percentage decrease?

# Percents & Growth – Practice Sheet #4

## 1) Use the *Growth Rate Table*.

- a) Annie put \$100 into a savings account that earns 3% APR. What will the balance of the account be after 20 years?
- b) The population of a city is about 100,000, and is increasing by 2.5% per year. Approximately, what will its population be in 50 years, if that growth rate continues?
- c) The value of a certain stock is currently increasing by 30% annually. If it now is valued at \$40 per share, then about how much will it be worth after 12 years, if that growth rate continues?

## 2) Use the *Rule of 72* to quickly answer each.

- a) How long does it take for your money to double at a return rate on your investment of 7% per year?
- b) The price of real estate in Clifton doubled over an eight-year period. What was the average annual growth rate over that period?

**You may use a calculator for the rest of this sheet.** You must write down what you put into your calculator. As always, round your answer to three significant digits, when necessary.

- 3) What is...
  - a) 7% of 89.3?
  - b) 1.3% of 730?
  - c) 0.04% of 34,200?
  - d) 320% of 45?
  - e) 458 increased by 12%?
  - f) 6700 decreased by 60%?
- 4) 18 is what percent...
  - a) of 37?
  - b) of 370?
  - c) of 3700?
  - d) of 5?
- 5) What percentage increase is it going from...
  - a) 480 up to 552?
  - b) 3500 up to 3654?
  - c) 65 up to 150?
- 6) What percentage decrease is it going from...
  - a) 420 down to 357?
  - b) 63,500 down to 12,700?
- 7)
  - a) 456 is 38% of what?
  - b) 456 is 2.4% of what?
  - c) 72 is 60% more than what?
  - d) 9 is 7.1% more than what?
  - e) 770 is 12% less than what?

## Word Problems.

- 8) A bike normally listed for \$320 is on sale for a 30% discount. What is the new discounted price?
- 9) Kate bought a house for \$198,000 and then sold it for \$230,000 one year later. What is the profit as a percentage?
- 10) Fred bought a house for \$230,000 and then sold it for \$198,000 one year later. What is the loss as a percentage?
- 11) Ed is 64% as tall as Joe.
  - a) How tall is Ed if Joe is 120cm tall?
  - b) How tall is Joe if Ed is 120cm tall?
- 12) TJ is 8% taller than Pat.
  - a) How tall is TJ if Pat is 135cm tall?
  - b) How tall is Pat if TJ is 135cm tall?
- 13) A bank account increases by 7% per year for 5 years. What is the percentage increase over the 5-year period?