

# Math 099 - Quiz 9

November 12, 2018

Name key

Score \_\_\_\_\_

Show all work to receive full credit. Supply explanations when necessary.

1. (3 points) How much time is required to double an investment at 4.5% simple interest?

SAY  $P=100$ ,  
TO DOUBLE REQUIRES  $I=100$ .

$$100 = 100(0.045)t$$

$$\Rightarrow t = \frac{1}{0.045} \approx 22.2 \text{ yrs}$$

2. (3.5 points) Use guess and check to determine how much time is required to double an investment at 4.5% compounded daily?

SAY  $P=100$ .

$$200 = 100 \left(1 + \frac{0.045}{365}\right)^{365t}$$

FIND  $t$ .

GUESS  $t$   
& CHECK

$$t=15 \text{ gives } \$196.40$$

$$t=16 \text{ gives } \$205.43$$

BETWEEN 15 & 16  
years.

3. (3.5 points) Use guess and check to determine the rate required to double an investment in 5 years if interest is compounded daily?

SAY  $P=100$ .

$$200 = 100 \left(1 + \frac{r}{365}\right)^{365 \times 5}$$

DOUBLE OF  
100.

GUESS  $r$   
& CHECK

$$r=0.13 \text{ gives } \$191.53$$

$$r=0.14 \text{ gives } \$201.35$$

ABOUT 14%