QUIZ

SHOW ALL WORK AND JUSTIFY ALL ANSWERS.

$A = P(1+rt)$ $A = P\left(1+\frac{r}{m}\right)^{mt}$ $A = P\left(\frac{\left(1+\frac{r}{m}\right)^{mt}-1}{\frac{r}{m}}\right)$ $A = P\left(\frac{1-\left(1+\frac{r}{m}\right)^{-mt}}{\frac{r}{m}}\right)$

1. (5 points) If you deposit $4,800 into an account paying 4.6% annual interest compounded quarterly, how much money will be in the account after 5 years? Round to the nearest cent.

COMPOUND FMA

$A = ?$
$P = 4800$
$r = .046$
$m = n = 4$
$t = 5$

$A = 4800\left(1+\frac{.046}{4}\right)^{4\cdot 5}$

$A = \$6033.36$

$A = P(1+rt)$ $A = P\left(1+\frac{r}{m}\right)^{mt}$ $A = P\left(\frac{\left(1+\frac{r}{m}\right)^{mt}-1}{\frac{r}{m}}\right)$ $A = P\left(\frac{1-\left(1+\frac{r}{m}\right)^{-mt}}{\frac{r}{m}}\right)$

2. (5 points) Douglas stops at a local coffee shop 20 times a month and buys a $4.75 coffee. After learning about finance in MATH 1324, he decided to drink his coffee at home and, at the end of each month, deposit the money he would have spent each month on coffee into an account earning 4.8% interest per year compounded monthly.

   (a) If he started this 2 years ago and continues this for 22 years from now, how much will be in the account?

   (b) How much money did he actually contribute to the account?

a) $A = ?$
$P = 20(4.75) = 95$
$r = .048$
$n = m = 12$
$t = 2 + 22 = 24$

$A = 95\left(\frac{\left(1+\frac{.048}{12}\right)^{12\cdot 24}-1}{\frac{.048}{12}}\right)$

$A = \$51{,}234.74$

b) He contributed $(4.75)(20)(12)(24) = \$27{,}360$

Interest earned: $51{,}234.74 - 27{,}360 = \$23{,}874.74$