Challenge #10

Pascal and Agnesi are ready to purchase a home. They have a choice of loan options. The home they want is $150,000. Which option should they take?

- 10% down payment, 3.3% interest (compounded monthly) on a 15-year loan

- 15% down payment, 3.9% interest (compounded monthly) on a 30-year loan

Challenge #10 Solution

Pascal and Agnesi are ready to purchase a home. They have a choice of loan options. The home they want is $150,000. Which option should they take?

① ❖ 10% down payment, 3.3% interest (compounded monthly) on a 15-year loan

② ❖ 15% down payment, 3.9% interest (compounded monthly) on a 30-year loan

① down = $15,000

$$PMT = P\left(\frac{\frac{APR}{n}}{1-\left(1+\frac{APR}{n}\right)^{-nY}}\right)$$

$$PMT = 135000\left(\frac{\frac{0.033}{12}}{1-\left(1+\frac{0.033}{12}\right)^{-12(15)}}\right)$$

$\approx \$951.89$

total payments:

$15{,}000 + 951.89(12)(15)$

$= \$186{,}340.20$

② down $= 0.15(150{,}000)$

$= \$22{,}500$

finance $P = \$127{,}500$

$$PMT = 127500\left(\frac{\frac{0.039}{12}}{1-\left(1+\frac{0.039}{12}\right)^{-12(30)}}\right)$$

$\approx \$601.38$

total payments:

$22500 + 601.38(12)(30)$

$= \$238{,}996.80$