Simple Interest and Compound Interest Practice

1. Paul invests $1500 in an account that earns 6% simple interest every year. How much money will he have in total after 3 years?
   \[ I = 1500 \times (0.06) \times 3 = 270 \quad A = 270 + 1500 \]

2. What rate of simple interest is needed for $250 to double in 8 years?
   \[ r = \frac{250}{250 \times 8} = 0.125 \quad R = 12.5\% \]

3. $400 is invested for 18 months at 6% simple interest. How much money will there be in total after the 18 months?
   \[ I = 400 \times (0.06) \times (1.5) = 36 \quad A = 436 \]

4. If you invest $1200 in an account that pays 8% interest compounded annually, what will be the value of the investment after 5 years?
   \[ A = 1200 \times (1.08)^5 \]

5. You borrowed $1,690 for 5 1/2 years at 5.7% compounded semi-annually. What total will you pay back?
   \[ i = 0.057/2 \quad i = 0.0285 \quad n = 5.5 \times 2 \quad n = 11 \quad A = 1690 \times (1.0285)^{11} \]

6. If you invest $500 in an account that pays 6% compounded monthly for 6 years, how much interest will you make over the 6 years?
   \[ i = 0.06/12 \quad i = 0.005 \quad A = 500 \times (1.005)^{72} \]

7. If your bank makes you two offers for your $10,000 investment:
   Offer One: 6% simple interest for 10 years
   Offer Two: 5.8% compounded semi-annually for 10 years

Which one makes you more interest and by how much?

Offer One:
   \[ I = 10000 \times (0.06)(10) \quad A = 17713.63 \]
   \[ \text{Interest} = 7713.63 \]

Offer Two:
   \[ I = 6000 \quad A = 10000 \times (1.029)^{20} \]