



Grade 7/8 Math Circles
November 25, 2020
Introduction to Interest - Problem Set

1. Determine the accumulated values of the following loans.
 - (a) A \$1200 loan for 7 months at 5% simple interest.
 - (b) An \$8000 loan for 4 years at 12.5% simple interest.
 - (c) A \$500 loan for 99 days at 10% simple interest. (Note: there are 365 days in a year.)
 - (d) A \$750 loan for 15 weeks at 13.25% simple interest. (Note: there are 52 weeks in a year.)
2. Determine the principal value if a savings account holds \$3600 after 10 years at 8% simple interest.
3. A loan of \$100 is to be repaid with \$120 at the end of 10 months. What is the annual simple interest rate?
4. How long will it take \$3000 to earn \$60 interest at 6% simple interest?
5. Determine the accumulated values of the following loans.
 - (a) A \$2000 loan for 4 years at 5% interest compounded annually.
 - (b) A \$100 loan for 25 years at 7.5% interest compounded annually.
6. Determine the principal value:
 - (a) If a savings account holds \$7500 after 10 years at 8% interest compounded annually.
 - (b) If a savings account holds \$25000 after 50 years at 4.5% interest compounded annually.

7. Determine what amount must be invested at a rate of 5% to accumulate $S = \$5000$ at the end of four years under
- (a) simple interest;
 - (b) compound interest (compounded annually).
8. Determine the accumulated values of the following loans.
- (a) A \$1000 loan for 3 years at 13% interest compounded weekly.
 - (b) A \$500 loan for 25 years at 4% interest compounded semi-annually.
9. Determine the principal value:
- (a) If a savings account holds \$6000 after 10 years at 15% interest compounded quarterly.
 - (b) If a savings account holds \$25000 after 50 years at 12% interest compounded monthly.