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Chapter 7 Test

For questions 1 to 5, select the best answer.

1. Rohan owes $12 500 in student loans. He must make monthly payments for the next five years at 6.75% per year, compounded monthly. What will be his monthly payment?

A $200.15 **B** $246.04
C $250.23 **D** $262.10

2. Hannah purchased her first car. She took a car loan with payments of $464.15 per month for two years at 3.9% per year, compounded monthly. What is the cost of the car if Hannah were to pay for it in cash today?

A $9000.50
B $9500.99
C $10 699.53
D $11 250.75

3. Karl has taken a three-year personal loan of $5000 at 7.25% per year, compounded monthly. The loan requires monthly payments. What is the total amount Karl will pay to the bank?

A $5362.50 **B** $5500.75
C $5578.56 **D** $5750.00

4. Randy needs to repay a $2700 loan. His bank offers personal loans for one to five years at 6.5% per year, compounded monthly. Randy can afford to pay $100 per month. How many months will it take him to repay the loan?

A 27 months
B 30 months
C 35 months
D 37 months

5. Taneka purchased a house for $219 900. She made a 5% down payment and took a mortgage for the remaining balance. The interest rate is 6.9% per year, compounded monthly, fixed for five years, based on an amortization period of 20 years. What is the total interest paid over five years?

A $67 441.54
B $70 000.10
C $70 991.10
D $71 013.23

6. Is each statement true or false?

a) To find the weekly mortgage payment, divide the monthly mortgage payment by four.

b) Increasing the frequency of mortgage payments will increase the amount of interest paid.

c) A pre-approved mortgage is the maximum amount that can be borrowed from a lending institution to purchase a house.

d) Monthly payments for 12 years means 144 payments.

7. Wai Chen purchased a motor scooter. His bank gave him a personal loan with payments of $125.75 for two years at 9.85% per year, compounded monthly.

a) What is the actual cost of the motor scooter if Wai Chen were to pay for it in cash today?

b) How much interest will he pay by choosing the payment plan?

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8. Sophia lives at home and earns $1700 per month. She deposits $850 at the end of each month into an account that pays 2.75% per year, compounded monthly.
- **a)** How much was in Sophia's account at the end of one year?
- **b)** How much was in Sophia's account at the end of two years?
- **c)** Compare your answers to parts a) and b). Explain why the answer to part b) is not double the answer to part a).
- **d)** Calculate the total amount that Sophia has deposited over the two years.
- **e)** How much interest has she earned in two years?

9. A business plans to set up a scholarship for a local high school. Starting one year from now, the business will give $2500 to one eligible student each year for ten years. How much money must the business invest today at 6.8% per year, compounded monthly, to provide the scholarship fund?

10. Hector is buying a laptop computer. The after-tax cost is $2297. The interest rate on a personal loan from the computer store is 11.25% per year, compounded monthly. Hector can manage a monthly payment of $125.
- **a)** Use a TVM Solver to determine the number of months it will take for Hector to repay the loan. Round your answer to the next full month.
- **b)** Round **N** to the nearest multiple of 12 and solve for **PMT**.
- **c)** Use your answer to part b) to determine the total amount that Hector will pay for the computer.
- **d)** His bank is offering personal loans at 10.95% per year, compounded monthly. Repeat parts a) and b), then calculate the amount Hector will save if he chooses the 10.95% loan.

11. Lowell and Janelle have a $147 900 mortgage at 5.45% per year on their two-bedroom townhouse.
- **a)** Determine the bi-weekly payment on a mortgage amortized over 25 years.
- **b)** Use the **ΣPrn** function on your graphing calculator to determine the principal paid over the first five years of the mortgage.
- **c)** Determine the interest paid over the first five years of the mortgage.

12. Mahelia purchased a used car. Part of an amortization table for Mahelia's one-year personal loan is shown.

Principal Paid ($)	Interest Paid ($)
645.99	45.67
649.68	41.98
653.39	38.27
657.12	34.54
660.87	30.79
664.64	27.02
668.44	23.22
672.25	19.41
676.09	15.57
679.95	11.71
683.83	7.83
687.75	3.93

- **a)** Determine the amount of Mahelia's monthly payment.
- **b)** Calculate the total amount needed to repay the loan.
- **c)** Calculate the total interest paid.
- **d)** Determine the amount Mahelia borrowed.
- **e)** Graph the data to show the remaining amount owing each month.

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