Do Now: Evaluate the expression

1.) 1200 * 0.03 * 5

2.) 15000 * 0.01 * 4

3.) $1000(1 + 0.01)^2$

4.) Find $2500(1 + 0.025)^3$ to the nearest hundredth

Answers to the Test Review

1. 6.12
2. 70.5
3. 60
4. 50 questions
5. 456 females
6. 20% increase
7. 51.4% decrease
8. 53.44
9. 10.56
10. a. $33.\overline{3}$% increase
    b. No (explain)
11. $34.96
12. $54.00
13. $96.00
14. Yes (cost $39.99)
15. a. $32.40 and $8.10
    b. $40.50
    c. $1.62
    d. $10.13 each
16. $32.50
17. a. 2.5 %
    b. $630
18. 8%
19. $5838.99

Do Now: (Do Not Copy) 4 people

Kendall and three friends share a meal at a restaurant. The bill, including 6% sales tax, comes to $34.02. ← Total Cost

a. How much is the food bill before the sales tax? What was your portion of the food bill?

$32.09 and $8.03

b. Kendall and her friends decide to leave a 20% tip. What is the total cost of the meal including the tip? and tax

$40.82

c. How much does each person need to leave for the tip? $1.61 each

$32.09(100% + 20%)
$32.09(120%)
$32.09(1.20)
$38.51

$38.51 − 32.09 = $6.42 tip

$1.61 each

32.09(20%) → 32.09(.20) → 6.418 → $6.42 ÷ 4 = $1.61 each

$40.43 ÷ 4 = $10.11

$40.82 ÷ 4 = $10.21

$8.03 + $1.61 = $9.64

Food Bill + Tip

Does not include the tax

7.7 Simple and Compound Interest

7.RP
7.EE
8.EE

- SWBAT calculate interest earned and account balances.
- SWBAT represent and analyze situations using algebraic symbols.

Calculators: Yes

interest - amount earned or paid for the use of money

principal - amount of money deposited or borrowed

simple interest - interest earned or paid only on the principal

annual interest rate - percent of the principal earned or paid per year

Simple Interest Formula:

$I = P * r * t$ where: P = principal
r = annual interest rate
t = time (in years)

3 months $\frac{3}{12} = \frac{1}{4}$
$= 0.25$

People buy bonds as a way to earn money. If a $1500 bond earns 4% simple interest per year, how much will it earn in interest after 2 years?

$I = ?$
$P = 1500$
$r = 4\% = 0.04$
$t = 2$

$I = P \cdot r \cdot t$
$I = 1500(0.04)(2)$
$= \$120$

Interest is $120
Balance is $1620

Find the simple interest earned on $500 after 5 years in a money market account paying 5%.

0.05

$I = 500(0.05)(5)$

$= \$125$

Interest is $125

Balance is $625

balance - interest added to the money in the account when the account earns interest.

Balance Formula:

A = P(1 + r * t) where:
A = balance
P = principal
r = annual interest rate
t = time (in years)

Brendan gets a summer job at a bakery. Suppose he saves $1400 of his pay and deposits it into an account that earns simple annual interest. After 9 months, the balance is $1421. Find the annual interest rate.

$A = 1421$
$P = 1400$
$r = ?$
$t = \frac{9}{12} = \frac{3}{4} = 0.75$

$A = P(1 + rt)$
$1421 = 1400(1 + r(0.75))$
$1421 = 1400 + 1050r$
$21 = 1050r$
$0.02 = r$
$2\% = r$

Carla deposits $2000 of her tax return into an account that earns simple annual interest. After 6 months the balance is $2040. Find the annual interest rate.

$A = 2040$
$P = 2000$
$r = ?$
$t = \frac{6}{12} = 0.5$

$A = P(1 + rt)$
$2040 = 2000(1 + r(0.5))$
$2040 = 2000 + 1000r$
$-2000 \quad -2000$
$40 = 1000r$
$\frac{40}{1000} = \frac{1000r}{1000}$
$0.04 = r$
$4\% = r$

Suppose LaNiyah deposits $400 into an account that earns a 5% simple annual interest. Find the balance of the account after 3 years.

$A = ?$
$P = 400$
$r = 5\% = 0.05$
$t = 3$

$A = P(1 + rt)$
$A = 400(1 + 0.05(3))$
$= 400(1 + 0.15)$
$= 400(1.15)$
$= 460$

Balance is $460

compound interest - interest that is earned on both the principal and any interest that has been earned previously.

Compound Interest Formula:

$A = P(1 + r)^t$ where: A = balance
P = principal
r = annual interest rate
t = time (years)

Kyle deposits $1500 into an account that earns 2.4% interest compounded annually. Find the balance after 6 years.

$A = ?$
$P = 1500$
$r = 2.4\% = 0.024$
$t = 6$

$A = P(1 + r)^t$
$A = 1500(1 + .024)^6$
$= 1500(1.024)^6$
$= 1500(1.152)$
$= \$1728$

Tania deposits $1200 into an account that earns 3.8% interest compounded annually. Find the balance after 5 years.

$1446

Exit Pass 7.7

What formula do you use to find the balance in an account 5 years after $1000 was deposited if the account pays 3% interest compounded annually? Then solve the problem using the formula.

"Don't blame the sea if you cannot catch a fish."

Working individually or with a partner, complete the workbook.

Workbook pg.

Reflection of Today's Lesson

7.7 Simple and Compound Interest

7.RP
7.EE
8.EE

- SWBAT calculate interest earned and account balances.
- SWBAT represent and analyze situations using algebraic symbols.

Calculators: Yes

Homework

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