

# Section 5-2

# Pay Periods and Hourly Rates

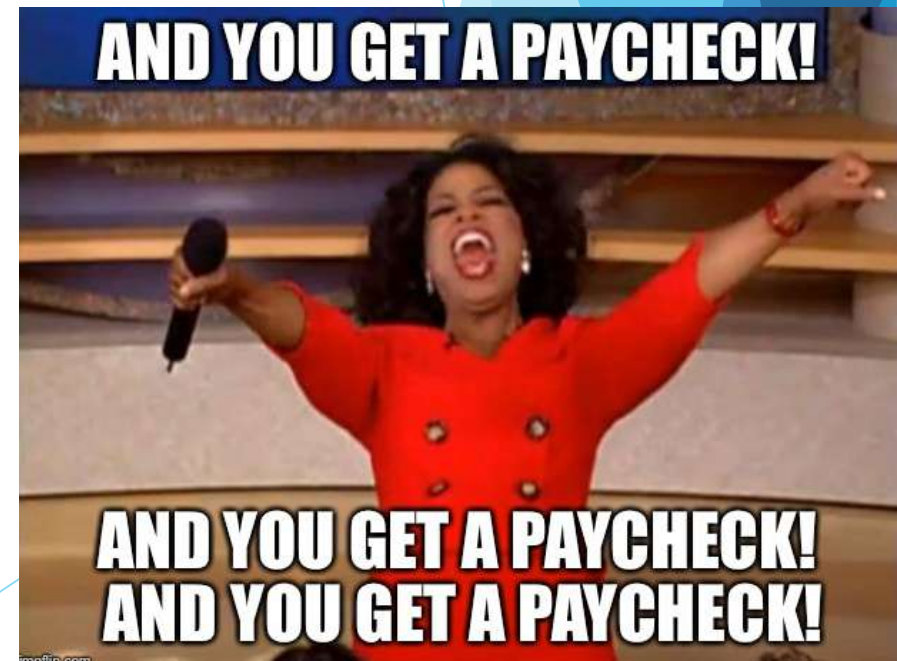
Advanced Financial Algebra

# What do you need to know to make sure each paycheck is correct?

- ▶ Employees are paid at different frequencies depending upon the company they work for.
- ▶ Some common options:
  - ▶ Weekly = 52 paychecks per year (52 weeks in a year)
  - ▶ Biweekly = 26 paychecks per year (every other week, same day)
  - ▶ Semimonthly = 24 paychecks per year (twice each month for 12 months)
  - ▶ Monthly = 12 paychecks per year (one per month, 12 months in a year)
- ▶ Direct deposit = your paycheck is automatically deposited electronically into your bank account. This can also save you money on bank fees each month.
- ▶ Overtime pay rate is usually 1.5 which is 1 ½ times the regular hourly rate.
- ▶ Minimum wage (amount depends upon where you live) = lowest hourly rate that can be paid to an employee. In California, 2018, it is \$10.50 for small companies and \$11/hour for larger companies.

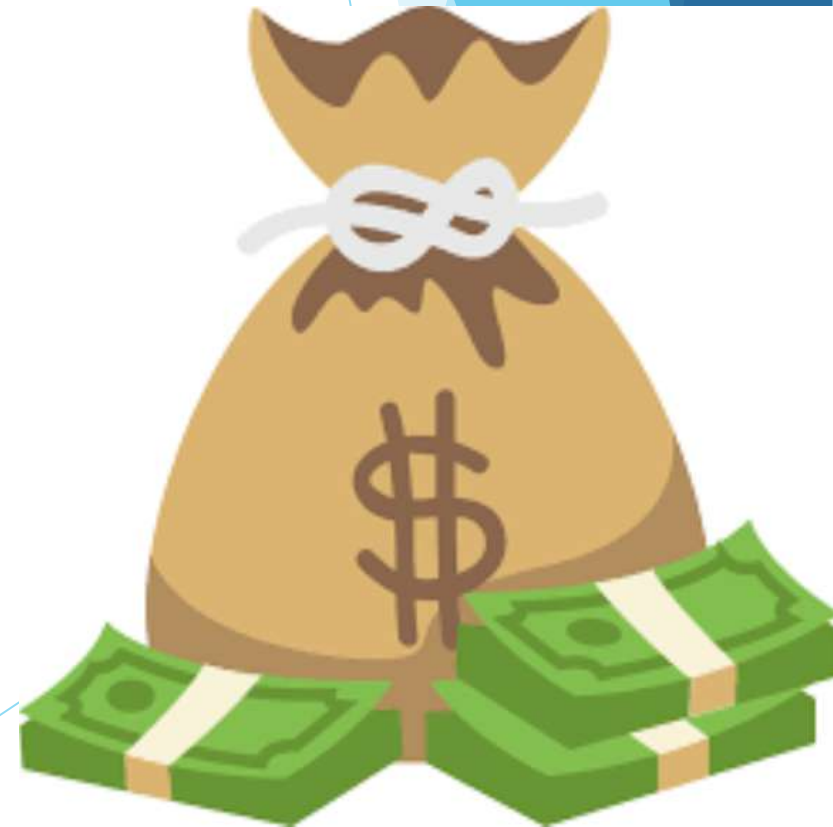
# Example 1 - biweekly paycheck

- ▶ Christina is paid biweekly. Her annual (yearly) salary is \$37,000. What is her biweekly salary, rounded to the nearest cent?
- ▶ SOLUTION:
  - ▶ There are 26 biweekly paychecks per year since she will be paid every other week.
  - ▶  $37,000 / 26 = \underline{\$1,423.08}$  is her biweekly salary.



## Example 2 - semimonthly

- ▶ Manny is paid semimonthly. His semimonthly salary is \$1,239. What is his annual salary?
- ▶ SOLUTION:
  - ▶ Manny received 24 paychecks per year since he is paid twice each month.
  - ▶  $\$1,239 * 24 = \underline{\$29,736}$  is his annual salary.

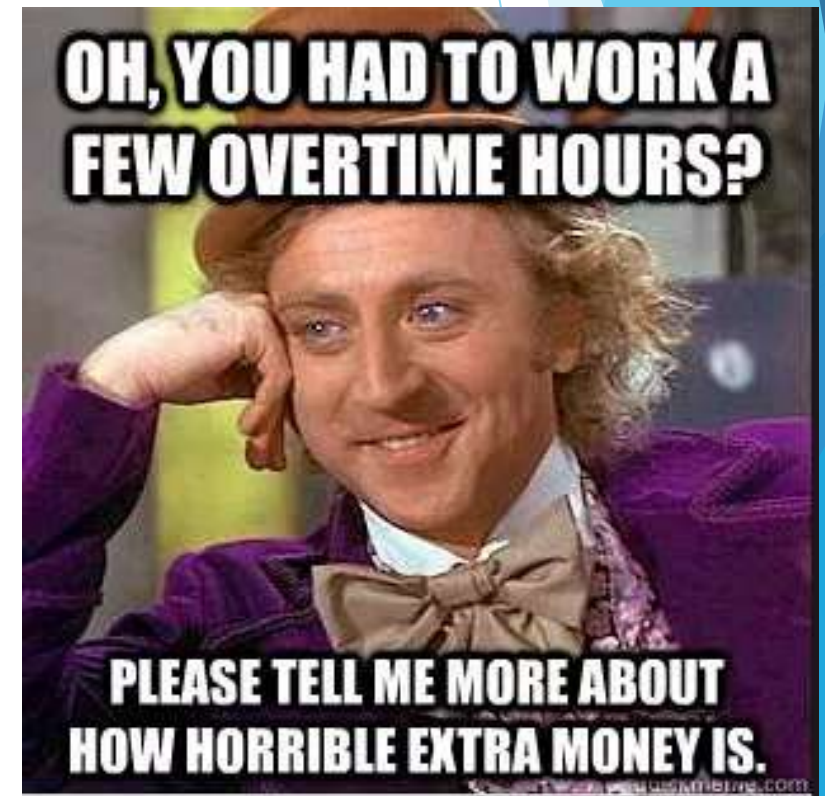


## Example 3 - weekly pay

- ▶ Maureen is a manager at a local restaurant. Her regular hourly wage is \$15.70. If she regularly works 40 hours per week, what is her regular weekly pay?
- ▶ SOLUTION:
  - ▶  $\$15.70 * 40 \text{ hours} = \underline{\$628 \text{ weekly pay}}$

## Example 4 - overtime

- ▶ If Maureen from Example #3 works overtime, she receives an hourly rate of  $1 \frac{1}{2}$  times her regular hourly rate. What is Maureen's hourly overtime rate?
- ▶ SOLUTION:
  - ▶  $\$15.70 * 1.5 = \underline{\$23.55}$  per hour overtime rate per hour



# Example 5 - more overtime

- ▶ Janice earns \$16 per hour. If her regular hours are 40 hours per week, and she receives time-and-a-half ( $1\frac{1}{2}$ ) overtime, find her total pay for a week in which she works 45 hours.
- ▶ SOLUTION:
  - ▶  $\$16 * 40 \text{ hours} = \$640$  regular pay
  - ▶  $45 \text{ hours total} - 40 \text{ regular hours} = 5$  overtime hours
  - ▶  $\$16 * 1.5$  (time-and-a-half) = \$24 per overtime hour
  - ▶  $\$24 * 5$  overtime hours = \$120 overtime pay only
  - ▶  $\$640$  regular pay + \$120 overtime pay = **\$760 total pay for 45 hours of work**

## Example 6 - hourly rate (backwards, using an equation)

- ▶ Sam is a waitress who worked 40 regular hours and 7 more overtime hours and her gross pay (before taxes and other withholdings) was \$611.05. What was her regular hourly rate?

- ▶ SOLUTION:

- ▶ Regular pay + overtime pay = total pay

- ▶ 40 hours (x dollars per hour) + 7 hours (1.5x time-and-a-half) = \$611.05 total

- ▶  $40x + 10.5x = \$611.05$

- ▶  $50.5x = \$611.05$

- ▶  $x = \underline{\$12.10 \text{ regular pay per hour}}$

multiplied 7 times 1.5x

combined like terms

divided both sides by 50.5



# Example #8 - salary increase/raise

- ▶ Michaela signed a 5-year contract for her new job and her starting salary is \$67K (\$67,000) per year. If she gets a good review of her work, at the end of each year, she will receive a 3% raise. What will her salary be in 5 years to the nearest dollar?

- ▶ SOLUTION:

- ▶ General equation is future salary = starting salary \*  $(1 + \text{raise})^{n-1}$
- ▶ Michaela's salary in five years =  $\$67,000 (1 + .03)^{5-1}$  no raise first year
- ▶ Michaela's salary in five years =  $\$67,000 (1.03)^4$
- ▶ Michaela's salary in five years  $\approx$  **\$75,409 rounded to nearest dollar**

Do #23 & #26 together in class 1st

# Assignment: pg 303 #4, 5, 10, 12, 14, 16, 18, 22, 23, 26 (intro to spreadsheets), 28

- ▶ 4. Cynthia's semimonthly salary is \$1,371.50. What is her annual salary?
- ▶ 5. Baseball player Alex Rodriguez earned \$20,000,000.00 in 2016. He played in 65 games. What was his salary per game to the nearest thousand dollars?
- ▶ 10. Justin is a golf pro. He works eight months per year, and is paid \$76,000. During the winter months, he teaches golf privately and earns another \$12,500. What is his average monthly salary based on his total yearly earnings?
- ▶ 12. Hector works in a gas station and earns \$15.50 per hour. Last week he worked 29 hours. What was his gross pay?
- ▶ 14. Lynn regularly works a 40-hour week and earns \$16 per hour. She receives time-and-a-half pay for each hour of overtime she works. Last week she worked 43 hours.
  - a. What was her regular gross pay?
  - b. What was her hourly overtime rate?
  - c. What was her overtime pay?
  - d. What was her total pay for the week?

# Assignment: pg 303 #4, 5, 10, 12, 14, 16, 18, 22, 23, 26 (intro to spreadsheets), 28 continued

- ▶ 16. Tom earns \$15.50 per hour at the Yankee Bowling Alley. He regularly works 40 hours per week. He is paid time-and-a-half for each hour of overtime work. Last week he worked 42 hours. What was his gross pay for the week?
- ▶ 18. Colby and Cheryl work in different local factories. Colby regularly earns \$18 per hour, and he is paid time-and-a-half for each hour of overtime he works. Cheryl regularly earns \$16.60 per hour, and she is paid double time for an hour of overtime. Who earns more for one hour of overtime?  ▼ How much more?
- ▶ 22. Julianne works as a waitress. She earns \$13 per hour plus tips.
  - ▶ a. Today, she worked  $x$  hours. Express her pay for these hours algebraically using  $x$ .
  - ▶ b. She served nine tables. The total bill for these nine tables was  $y$  dollars. Julianne receive 18% in tips from these bills. Express the amount she received in tips algebraically.
  - ▶ c. Express Julianne's total earnings for the day algebraically.

# Assignment: pg 303 #4, 5, 10, 12, 14, 16, 18, 22, 23, 26 (intro to spreadsheets), 28 continued

▶ 26.

	A	B	C	D	E	F	G	H
1	Hours Worked	Regular Hours	Hourly Rate	Regular Gross Pay	Overtime Hours	Time-and-a-Half Overtime Rate	Total Overtime Pay	Total Gross Pay
2	42	40	16.00					
3	44	40	19.00					
4	45	40	15.80					

- a. Write the formula to compute the regular gross pay in cell D2.
- b. Write the formula to compute the overtime hours in cell E2.
- c. Write the formula to compute the time-and-a-half overtime hourly rate in cell F2.
- d. Write the formula to find the total overtime pay in cell G2.
- e. Write the formula to compute the total weekly pay in cell H2.

▶ 28. Melissa has bought a \$2 state lottery ticket every week for the past 20 years. This week, she won for the first time - \$2,000. Compare these winnings to her total expenditures and explain whether or not it was worth it and why.