

6-1 Look for Employment

Exercises

1. Mitchell found a job listed in the classified ads that pays a yearly salary of \$57.3K. What is the weekly salary based on this annual salary?
2. Clarissa is considering two job offers. One has an annual salary of \$61.1K and the other has an annual salary of \$63.4K. What is the difference in the weekly pay for these two jobs, rounded to the nearest dollar?
3. Mr. Leonard took a job through an employment agency. The job pays \$88K per year. He must pay a fee to the employment agency. The fee is 22% of his first four weeks' pay. How much money must Mr. Leonard pay the agency, to the nearest cent?
4. The Ludwig Employment Agency posted a job in the advertising field. The fee is 18% of three weeks' pay. The job pays d dollars annually. Express the agency fee algebraically.
5. Arielle owns Levitt Construction Corporation. She needs a welder and is placing a seven-line classified ad. The cost of an ad that is x lines long is given by the following piecewise function. Find the cost of a seven-line ad.
$$c(x) = \begin{cases} 33 & \text{when } x \leq 4 \\ 33 + 5(x - 4) & \text{when } x > 4 \end{cases}$$
6. The *Carpenter's Chronicle* charges \$12 for each of the first three lines of a classified ad and \$7.25 for each additional line. Express the cost of an x -line ad, $c(x)$, algebraically as a piecewise function.
7. Job-Finder charges employers d dollars to post a job on their website. They offer a 12% discount if 10 or more jobs are posted. If 24 jobs are posted by a specific employer, write an algebraic expression for the cost of the 24 ads with the discount.
8. Art's Printing Service charges \$27.50 to print 100 high-quality copies of a one-page resume. Each additional set of 100 copies costs \$14.99. Express the cost, $c(r)$, of printing r sets of 100 resumes, as a piecewise function.
9. Yoko needs 300 copies of her resume printed. Dakota Printing charges \$19.50 for the first 200 copies and \$9 for every 100 additional copies.
 - a. How much will 300 copies cost, including a sales tax of $4\frac{1}{2}\%$? Round to the nearest cent.
 - b. If the number of sets of 100 resumes is represented by r , express the cost of the resumes, $c(r)$, algebraically as a piecewise function.

10. Kim answered a help-wanted ad. The ad states that the job pays d dollars semiannually. Express Kim's monthly salary algebraically.
11. Rudy's job pays him \$1,550 per week. Express his annual salary using the 'K' notation.
12. Teach-Tech is an online job listing site for prospective teachers. The charge to teachers looking for jobs is \$19 per week, for the first 4 weeks, to post their resumes. After four weeks, the cost is \$7 per week.
- If w represents the number of weeks, represent the cost $c(w)$ as a piecewise function.
 - Find the cost of listing a resume for 8 weeks.
13. Charleen earns m dollars per month as a police officer. Express algebraically her annual salary using the K abbreviation found in classified ads.
14. Marty is a dentist. He is placing an eight-line classified ad for a hygienist. The following piecewise function gives the price of an x -line ad.
- $$c(x) = \begin{cases} 31 & \text{when } x \leq 5 \\ 20 + 6(x - 5) & \text{when } x > 5 \end{cases}$$
- What is the cost of the first five lines if Marty purchases five lines?
 - What is the cost of the first five lines if Marty purchases more than five lines?
 - How much less is a six-line ad compared to a five-line ad?
15. Kevin is looking for a job as a piano technician. One classified ad lists a job that pays 64.6K. Another job he found has a weekly salary of \$1,120. What is the difference in the weekly salaries of these two jobs? Round to the nearest dollar.
16. Michelle got a new job through the McCartney Employment Agency. The job pays \$49,400 per year, and the agency fee is equal to 35% of one month's pay. How much must Michelle pay the agency? Round to the nearest cent.
17. Todd is looking for a job as a chemistry teacher. He plans to send resumes to 145 schools in his city. His local printer charges \$34 per 100 copies and sells them only in sets of 100.
- How many copies must Todd purchase if he is to have enough resumes?
 - How much will the copies cost Todd, including 5% sales tax?

6-2 Pay Periods and Hourly Rates

Exercises

1. Mr. Varello is paid semimonthly. His annual salary is \$64,333. What is his semimonthly salary, rounded to the nearest cent?
2. Mr. Whittaker earns b dollars biweekly. His employer is changing the pay procedure to monthly, but no annual salaries are changing. Express his monthly salary algebraically.
3. Mrs. Frederick is paid semimonthly. Her semimonthly salary is \$1,641.55. What is her annual salary?
4. Ms. Saevitz is paid semimonthly. Her annual salary is a dollars. Her office is considering going to a biweekly pay schedule. Express the difference between her biweekly salary and her semimonthly salary algebraically.
5. Julianne works at a local Emerald Monday restaurant. Her regular hourly wage is \$9.50.
 - a. She regularly works 40 hours per week. What is her regular weekly pay?
 - b. If she works 50 weeks each year at this rate, what is her annual salary?
6. Mr. Lewis regularly works h hours per week at a rate of y dollars per hour. Express his annual salary algebraically.
7. Mrs. Roper works 40 hours per week regularly, at a rate of \$12.20 per hour. When she works overtime, her rate is time and a half of her regular hourly rate. What is Mrs. Roper's hourly overtime rate?
8. If you earned d dollars per hour regularly, express your hourly overtime rate algebraically if you are paid time-and-a-half for overtime.
9. Mr. Ed earns \$14.50 per hour. His regular hours are 40 hours per week, and he receives time-and-a-half overtime. Find his total pay for a week in which he works 45 hours.
10. Mrs. Trobiano regularly works 40 hours per week, at a rate of d dollars per hour. Last week she worked h overtime hours at double time. Express her total weekly salary algebraically.
11. Krissy worked her 40 regular hours last week, plus 8 overtime hours at the time-and-a-half rate. Her gross pay was \$572. What was her hourly rate?

12. Mrs. Frasier worked her 40 regular hours last week, plus four overtime hours at the double-time rate. Her gross pay was \$576. What was her hourly rate?
13. Last year Andrea's annual salary was a dollars. This year she received a raise of r dollars per year. She is now paid semimonthly.
- Express her biweekly salary last year algebraically.
 - Express her semimonthly salary this year algebraically.
 - How many more checks did Andrea receive each year when she was paid biweekly, as compared to the new semimonthly arrangement?
14. This week, Sean worked h regular hours and t overtime hours at the time-and-a-half rate. He earned \$950. If r represents his hourly rate, express r algebraically in terms of h and t .
15. Mr. Harrison earns \$32 per hour. He regularly works 40 hours per week. If he works 26 overtime hours (at time-and-a-half), would his overtime pay exceed his regular gross pay? Explain.
16. In 2003, Carlos Zambrano earned \$340,000 pitching for the Chicago Cubs. In 2009, his salary was \$18,750,000.
- Zambrano pitched in 32 games in 2003. What was his salary per game in 2003?
 - He pitched in 28 games in 2009. What was his salary per game in 2009? Round to the nearest cent.
 - Did he earn more per game in 2009 than he did for the entire 2003 season?
17. Last year, Mrs. Sclair's annual salary was \$88,441. This year she received a raise and now earns \$96,402 annually. She is paid weekly.
- What was her weekly salary last year? Round to the nearest cent.
 - What is Mrs. Sclair's weekly salary this year? Round to the nearest cent.
 - On a weekly basis, how much more does Mrs. Sclair earn as a result of her raise?
18. Leah is paid semimonthly. How many fewer paychecks does she receive in two years compared to someone who is paid weekly?

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**Commissions, Royalties,
and Piecework Pay****Exercises**

1. Enid wrote a textbook for high school students. She receives a 5% royalty based on the total sales of the book. The book sells for \$51.95, and 12,341 copies were sold last year. How much did Enid receive in royalty payments for last year, to the nearest cent?
2. Rich wrote a novel that sells for n dollars each. He received a bonus of \$50,000 to sign the contract to write the book, and he receives 9% commission on each book sale. Express the total amount of income he earns from selling b books algebraically.
3. Dafna makes sport jackets. She is paid d dollars per hour, plus a piece rate of p dollars for each jacket. Last week she made j jackets in h hours. Write an expression for her total earnings.
4. Rock singer and writer Beep Blair is paid 11.5% on her CD sales and music downloads. Last year, she sold 1.22 million CDs and 2.1 million music downloads. The CDs were sold to music stores for \$5 each, and the music downloads were \$1 each.
 - a. What was the total amount of CD sales?
 - b. What was the total amount of downloads?
 - c. How much did Beep Blair receive in royalties last year?
5. Mr. Corona sells magazines part-time. He is paid a monthly commission. He receives 21% of his first \$1,500 in sales and 14% of the balance of his sales. Last month he sold \$2,233 worth of magazine subscriptions. How much commission did he earn last month?
6. Carter Cadillac pays commission to its car sales staff. They are paid a percent of the profit the dealership makes on the car, not on the selling price of the car. If the profit is under \$500, the commission rate is 18%. If the profit is at least \$500 and less than or equal to \$2,000, the commission rate is 24% of the profit. If the profit is above \$2,000, the rate is 27% of the profit. If p represents the profit, express the commission $c(p)$ algebraically as a split function.
7. Mrs. Lohrius sells electronics on commission. She receives 10% of her first x dollars in sales and 12% of the balance of her sales. Last month, she sold y dollars worth of electronics. Express the commission she earned last month algebraically.

8. Abbey Road Motors pays a percent commission to its sales people. They are paid a percent of the profit the dealership makes on a car. If the profit is under \$1,000, the commission rate is 20%. If the profit is at least \$1,000 and less than or equal to \$2,000, the commission rate is 20% of the first \$1,000 and 24% of the remainder of the profit. If the profit is above \$2,000, the rate is 20% of the first \$1,000 of profit, 24% of the next \$1,000 of profit, and 29% of the amount of profit over \$2,000. If p represents the profit, express the commission $c(p)$ algebraically as a split function.
9. Casey is a real estate agent. She earns 8.15% commission on each sale she makes. After working with a potential buyer for $3\frac{1}{2}$ months, she finally sold a house for \$877,000.
- What did Casey earn in commissions for this sale?
 - This was her only sale for the entire $3\frac{1}{2}$ -month period. What was her average salary per month for this period, to the nearest cent?
 - For the next four months, Casey is not able to sell a house due to a faltering economy. What is her average monthly salary for the past $7\frac{1}{2}$ months, to the nearest cent?
10. Barry works at Larry's Computer Outlet. He receives a weekly-salary of \$310 plus 3.05% commission based on his sales. Last year, he sold \$1,015,092 worth of computer equipment. How much money did Barry earn last year, to the nearest cent?
11. Jill picks corn and gets paid at a piecework rate of 55 cents per container for the first 300 containers picked. She receives 60 cents per container for every container over 300 that she picks. Last week, Jill picked 370 containers. How much did she earn?
12. Vicki works at Apple Appliances. She earns d dollars per hour, but is also paid $p\%$ commission on all sales. Last week she sold w dollars worth of appliances in the h hours she worked. Write an expression that represents her salary for the week.
13. Ms. Halloran works in a factory. She receives a salary of \$9.10 per hour and piecework pay of 15 cents per unit produced. Last week she worked 40 hours and produced 988 units.
- What was her piecework pay? What was her total hourly pay for the week? What was her total pay for the week?
 - If her boss offered to pay her a straight \$13 per hour and no piecework pay for the week, would she earn more or less than under the piecework pay system?
 - What would her total weekly salary have been if she produced 0 units?