Name _____ Date _____

tirement Plans

Some employees are automatically enrolled in a **pension plan** that provides them with a **pension** after they retire. Most pension plans combine employee payroll deductions with employer contributions that are invested in stocks, bonds, or mutual funds.

Many pension benefits can be calculated using the formula and the benefit percent table below.

$$\text{Annual Pension Benefit} = \text{Benefit Percent} \times \text{Years of Service} \times \text{Average Annual Earnings}$$

BENEFIT PERCENT FOR EACH YEAR OF SERVICE

Years of Service	Age 55	56	57	58	59	60	61	62	63	64	65+
5 to 9	0	0	0								
10	1.00	1.06	1.12	1.20	1.30	1.40	1.52	1.64	1.76	1.88	2.00
11	1.07	1.12	1.18	1.25	1.35	1.44	1.55	1.66	1.78	1.89	2.00
12	1.13	1.18	1.24	1.31	1.39	1.48	1.58	1.69	1.79	1.90	2.00
13	1.20	1.25	1.29	1.36	1.44	1.52	1.62	1.71	1.81	1.90	2.00
14	1.26	1.31	1.35	1.41	1.48	1.56	1.65	1.74	1.82	1.91	2.00
15	1.33	1.37	1.41	1.47	1.53	1.60	1.68	1.76	1.84	1.92	2.00
16	1.40	1.43	1.47	1.52	1.58	1.64	1.71	1.78	1.86	1.93	2.00
17	1.46	1.49	1.53	1.57	1.62	1.68	1.74	1.81	1.87	1.94	2.00
18	1.53	1.56	1.58	1.62	1.67	1.72	1.78	1.83	1.89	1.94	2.00
19	1.59	1.62	1.64	1.68	1.71	1.76	1.81	1.86	1.90	1.95	2.00
20	1.66	1.68	1.70	1.73	1.76	1.80	1.84	1.88	1.92	1.96	2.00
21	1.73	1.74	1.76	1.78	1.81	1.84	1.87	1.90	1.94	1.97	2.00
22	1.79	1.80	1.82	1.84	1.85	1.88	1.90	1.93	1.95	1.98	2.00
23	1.86	1.87	1.87	1.89	1.90	1.92	1.94	1.95	1.97	1.98	2.00
24	1.93	1.93	1.93	1.94	1.94	1.96	1.97	1.98	1.98	1.99	2.00
25 or over	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00

Name _____ Date _____

Example 1: A worker retires at age 59 with 18 years of service in the company. If her average annual earnings were $35,000, what is her annual pension benefit? How much will she receive per month?

Step 1 Use the table on the previous page. The benefit percent for a 59-year-old with 18 years of service is 1.67.

Step 2 Use the formula to find the annual benefit.

$1.67\% \times 18 \times \$35{,}000 = \$10{,}521$

Step 3 Divide to find the monthly benefit.

$\$10{,}521 \div 12 = \$876.75$

This worker will receive a pension of $10,521 per year, or $876.75 per month.

Workers whose do not have pension plans are often able to save for retirement using a 401(k) plan. A **401(k)** is a type of retirement savings account offered by many corporations. The employee makes contributions to the account, and the employer may match all or part of the employee's contributions.

Employees decide how to invest their contributions by choosing among the investment options offered by the plan. Many plans include a variety of mutual funds as well as the opportunity to purchase company stock.

Example 2: Eddie decides to contribute 6% of his salary to a 401(k) plan. His annual salary is $42,000 and he is paid twice per month. How much will Eddie contribute to his 401(k) plan each pay period?

Step 1 Find the annual amount Eddie contributes.

6% of $\$42{,}000 = 0.06 \times \$42{,}000 = \$2{,}520$

Step 2 Divide to find the amount per pay period.
THINK: Eddie is paid twice per month, so he has 24 pay periods in one year.

$\$2{,}520 \div 24 = \$105$

Eddie will contribute $105 to his 401(k) each pay period.

Name _____ Date _____

l ·nple 3: The table describes the 401(k) matching program offered by Elaine's company. Elaine co. ·butes 5% of her annual salary of $36,000 to her 401(k) plan. How much will her company contribute to her 401(k) each year?

401(k) Match Program

For every $1.00 the employee contributes,...	...the employer contributes $0.50.*
*The maximum employer contribution is 4% of the employee's salary.	

Step 1 Find the annual amount Elaine contributes.

5% of $36,000 = 0.05 × $36,000 = $1,800

Step 2 Divide to find the annual amount the company contributes.
THINK: The company contributes half of what Elaine does, so divide by 2.

$1,800 ÷ 2 = $900

The company will contribute $900 to Elaine's 401(k) each year.

Individual Retirement Accounts (or **IRAs**) allow people to save for retirement on their own. Contributions to an IRA can be used to purchase a wide variety of investments, including stocks, bonds, mutual funds, and certificates of deposit.

I ·aditional IRA, contributions are often tax-deductible, meaning that you pay no income tax on the money you put into the IRA. However, withdrawals from the account at retirement are taxed as income.

By contrast, in a **Roth IRA**, contributions are not tax-deductible, but withdrawals from the account at retirement are usually tax-free.

Name _____ Date _____

The table shows the maximum yearly contribution allowed to an individual's IRAs in 2011.

Age at end of 2011	Maximum IRA contribution (for most individuals)
Under 50	$5,000
50 or older	$6,000

Example 4: In 2011, Sherri was 46 years old. She contributed $3,500 to her traditional IRA. What is the maximum amount she could contribute to her Roth IRA?

Step 1 Use the table to find Sherri's maximum yearly contribution.

THINK: Since Sherri is under 50, her maximum contribution amount is $5,000.

Step 2 Subtract Sherri's contribution to her traditional IRA.

$5,000 − $3,500 = $1,500

Sherri could contribute a maximum of $1,500 to her Roth IRA.

Think About It

1. Why does an employee's contributions to his or her pension fund represent only a small part of the eventual pension benefits received?

_____

_____

2. What is one advantage that a 401(k) plan may have over an IRA?

_____

_____

3. Why might someone choose to invest in a traditional IRA over a Roth IRA?

_____

_____

Name _____ Date _____

Practice

Remember to estimate whenever you use your calculator.

Use the benefit percent table on page 103. Complete the table. Round money amounts to the nearest cent.

Age at retirement	Years of service	Average annual earnings	Benefit percent	Annual pension	Monthly pension
65	20	$24,000	1. _____	2. _____	3. _____
57	15	$37,800	4. _____	5. _____	6. _____
58	23	$31,000	7. _____	8. _____	9. _____
63	12	$39,850	10. _____	11. _____	12. _____
69	34	$24,375	13. _____	14. _____	15. _____

Complete the table. Round to the nearest cent.

Annual salary	Percent contributed to 401(k)	Annual contribution to 401(k)	Pay periods per year	Contribution per pay period
$25,000	6%	16. _____	24	17. _____
$38,100	7%	18. _____	12	19. _____
$42,400	10%	20. _____	52	21. _____
$32,900	8%	22. _____	12	23. _____
$29,500	4%	24. _____	26	25. _____

For every $1.00 that an employee contributes to a 401(k) plan, the employer contributes $0.50 (up to a maximum employer contribution of 4% of the employee's salary). Use this information to complete the table.

Annual salary	Percent employee contributes to 401(k)	Amount employee contributes to 401(k)	Amount employer contributes to 401(k)
$27,000	3%	26. _____	27. _____
$33,500	5%	28. _____	29. _____
$36,200	6%	30. _____	31. _____
$44,100	8%	32. _____	33. _____

Name _____ Date _____

Use the table about maximum IRA contributions on page 106. Complete the table.

Age at end of 2011	Traditional IRA contribution in 2011	Maximum Roth IRA contribution in 2011
52	$2,800	**34.** _____
31	$0	**35.** _____
46	$4,700	**36.** _____
63	$5,000	**37.** _____

Solve.

38. Raymond retires from his company at age 62 after 20 years of service. His average annual earnings were $53,475. Use the benefit percent table on page 103.

a. What is Raymond's benefit percent? _____

b. What is his annual pension benefit? _____

c. How much will he receive per month?

_____

39. Shanna contributes 12% of her salary to a 401(k) plan. Her annual salary is $38,500, and she is paid once per month.

a. What is the annual amount Shanna contributes to her 401(k)? _____

b. How much does she contribute to her 401(k) each pay period? _____

40. For every $1.00 that an employee contributes to a 401(k) plan, the employer contributes $0.25 (up to a maximum employer contribution of 3% of the employee's salary).

a. Mark contributes 6% of his annual salary of $28,000 to the 401(k) plan. What is the annual amount that he contributes? _____

b. What is the annual amount that the company contributes to Mark's 401(k) plan? _____

c. What is the total annual contribution to Mark's 401(k)? _____

Page 94
Problem Solving Applications

1. $8.23
2. $86.50
3. $57.14
4. $87.06
5. increase
6. increase
7. decrease
8. decrease
9. Nostro
10. Nasco
11. 3 stocks
12. Nostro
13. $9.13 high; $6.85 low
14. $2.28
15. $420
16. no
17. (P) $162

Pages 97-98
Think About It

1. Stocks represent a piece of ownership in a corporation, while bonds represent only a loan to a corporation or government. Stocks pay dividends, while bonds pay interest.
2. Municipal bonds are issued by local governments, while corporate bonds are issued by corporations.

Practice

1. Chapman International
2. Chapman International
3. City of Yuma
4. Chapman International
5. City of Yuma, Dover Products
6. Chapman International, Eastern Metals, Finch Township
7. $3,812
8. $8,032
9. $20,440
10. $13,365
11. 95%
12. 87.5%
13. 83.75%
14. 150%
15. 105%
16. 112.5%
17. $510
18. $413
19. $1,590
20. $2,625
21. 7.1%
22. 4.6%
23. 8.1%
24. 5.2%

Pages 100-102
Think About It

1. Because mutual funds represent a broad array of investments, investing in mutual funds is usually less risky than buying and selling individual stocks and bonds. Their earnings, or yields, are often higher than most individuals would be likely to get by themselves.

Practice

1. $38.12
2. $1,906
3. $9,530
4. $17.18
5. $859
6. $4,295
7. $15.28
8. $764
9. $3,820
10. $24.12
11. $1,206
12. $6,030
13. $4,124
14. $14,340
15. $5,637.50
16. $278
17. $33,154
18. $9,622.50
19. $515.40
20. $3,105.90
21. 509 shares
22. 729 shares
23. 106 shares
24. $832
25. $2,964
26. $16
27. $13.68
28. $684
29. $3,420
30. $16.09
31. $804.50
32. $4,022.50
33. $16.61
34. $830.50
35. $4,152.50
36. $1,846
37. $22,752
38. $663.50
39. $4,983
40. 365 shares
41. $1,117.50

Pages 106-108 Retirement Plans
Think About It

1. Because pension fund contributions are invested and earn interest, the fund grows as much from investment income as from ongoing employee contributions.
2. Possible answer: An employee with a 401(k) plan may get matching contributions to the plan from his or her employer. With an IRA, an individual does not get employer contributions.
3. Possible answer: If a person will be in a lower tax bracket when retired, he or she might pay less in taxes on withdrawals from a traditional IRA than on contributions made now to a Roth IRA.

Practice

1. 2.00
2. $9,600
3. $800
4. 1.41
5. $7,994.70
6. $666.23
7. 1.89
8. $13,475.70
9. $1,122.98

10. 1.79
11. $8,559.78
12. $713.32
13. 2.00
14. $16,575
15. $1,381.25
16. $1,500
17. $62.50
18. $2,667
19. $222.25
20. $4,240
21. $81.54
22. $2,632
23. $219.33
24. $1,180
25. $45.38
26. $810
27. $405
28. $1,675
29. $837.50
30. $2,172
31. $1,086
32. $3,528
33. $1,764
34. $3,200
35. $5,000
36. $300
37. $1,000
38. a. 1.88
    b. $20,106.60
    c. $1,675.55
39. a. $4,620
    b. $385
40. a. $1,680
    b. $420
    c. $2,100

Works Backward

Pages 110-112
Problem Solving Strategy
Think About It

1. Find the amount that Roy has: (a) at the end of the 14th year, so it would triple to be $108,000 at the end of the 21st year; (b) at the end of the 7th year, so it would triple to be $36,000 at the end of the 14th year; and (c) at the beginning of the 1st year, so it would triple to be $12,000 at the end of the 7th year.
2. $4,000

Practice

1. $20,000	2. $10,000
3. $22,500	4. $11,250
5. $27,000	6. $9,000
7. $3,000	8. $18,000
9. $6,000	10. $2,000
11. $25,000	12. $9,000
13. $9,375	14. $27,000
15. $8,750	16. $12,500
17. $10,000	18. $17,500

Pages 114-116
Decision Making

1. $37.50	2. 0.5%
3. 15.4% (I)	4. High
5. $87.37	6. $2.75
7. 3.1%	8. 18.6% (D)
9. None	10. 0%
11. 14.8% (I)	12. Moderate
13. $15.25	14. $1.75
15. 41.9% (I)	16. Low
17. $117.75	18. $4.50
19. 3.8%	20. Low
21. $21.50	22. $1.00
23. 4.7%	24. 16.2% (I)
25. High	26. Techno

27. Jetstorm
28. Laserpert
29. Laserpert
30. Laserpert
31. Phantom
32. Laserpert and Jetstorm; low risk
33. Approximately 12 shares of Jetstorm and 69 shares of Phantom
34. Answers may vary.

35. $22.50	36. 4.4%
37. 9.8% (I)	38. High
39. $75.67	40. $2.25
41. 3.0%	42. 19.6% (D)
43. None	44. 0%
45. 11.4% (I)	46. Low
47. $124.25	48. $4.50
49. 2.4% (D)	50. High
51. $16.50	52. $2.00
53. 12.1%	54. Low
55. $39.45	56. $0.60
57. 1.5%	58. 11.3% (I)

59. Moderate
60. NeoElec 61. Franklin
62. Tor G & E
63. Tor G & E
64. Tor G & E
65. State Gas
66. NeoElec and Tor G & E; low risk
67. Approximately 106 shares of Tor G & E and 23 shares of Ray G & E
68. Approximately 106 shares of Tor G & E and 44 shares of New Gas
69. Answers may vary.