

Applications

Genius is 1% inspiration and 99% perspiration. Accordingly, a genius is often merely a talented person who has done all of his or her homework.

Thomas Edison - Inventor

1. What do you think Thomas Edison meant by the word *perspiration*? How do those words apply to what you've learned in this lesson?
2. Tomika owns $\frac{3}{5}$ of a law partnership. What percent of the partnership does she own? 60%
3. Ryan owns three-eighths of a florist shop worth \$76,000. What is the value of Ryan's share of the business? $(\frac{3}{8})(76,000) = \$28,500$
4. A corporation issues 1,200,000 shares of stock at its beginning to shareholders. How many shares must a shareholder own to have a majority of the shares? $600,001$ (1 more than half)
5. Elisa owns 28% of the Grudman Corporation. The rest of the shares are owned equally by the remaining six shareholders. What percent of the corporation does each of the other shareholders own? 12%
 $100 - 28 = 76\%$
 $76\% \div 6 = 12\%$
6. Julie and Kristen are the partners in a local sporting goods shop. They needed \$51,000 to start the business. They invested in the ratio 5:12, respectively.
 - a. How much money did each invest? $J: 15,000$ $K: 36,000$
 $5(3000) \quad 12(3000)$
 - b. What percent of the business was owned by Kristin? Round to the nearest tenth of a percent. $\frac{12}{17} = 70.6\%$
 - c. If the business grows to \$3,000,000, what percent of it will Julie own? Round to the nearest tenth of a percent. 29.4%
 $100 - 70.6 = 29.4\%$
7. Joe, Thea, and Taylor invested in a partnership in the ratio 1:4:7, respectively. Years later, when the partnership was worth \$1.6 million, Thea decides to go to graduate school and sells her part of the partnership to Joe.
 - a. How much would Joe need to pay Thea to buy her share of the business? Round to the nearest dollar. $\$533,333 = 4(133,333.33)$
 $x + 4x + 7x = 1,600,000$
 $x = 133,333.33$
 - b. What percent of the business will Joe own after he buys Thea's portion? Round to the nearest tenth of a percent. $\frac{1}{2} = 41.7\%$
8. Seventy-two percent of the shareholders in a service corporation are women. If the corporation is owned by 45,600 people, how many of the shareholders are women? $32,832 = 72(45,600)$
9. The 120 shareholders of a corporation are voting for a new Board of Directors. Shareholders receive one vote for each share they own. Would it be possible for one shareholder's votes to choose the new Board of Directors? Explain. *yes if they own the majority of the shares*
10. The top x shareholders in a corporation each own y shares of a certain stock. The corporation's ownership is represented by a total of w shares of stock. Express the percent of the corporation owned by the top x shareholders. $\frac{xy}{w}$
 $xy = \# \text{ of shares owned by top } x \text{ shareholders}$
 $w = \text{total } \# \text{ of shares}$

11) A corporation is having a shareholders meeting. Not all shareholders are able to attend. In fact, most usually do not. The ownership of the corporation is represented by 2,351,000 shares of stock owned by 111,273 shareholders.

- a. Must all of the shareholders own more than one share of stock? *No 111,273 could all own 1 share, while 1 person could own the rest!*
- b. If 3,411 shareholders attend the meeting, what percent of the shareholders are represented? Round to the nearest percent.
- c. If the shareholders who do attend own a combined 1.8 million shares of the corporation, what percent of the shares are represented at the meeting? Round to the nearest percent.

$$\frac{3,411}{111,273} = .03 = 3\%$$

$$2,351,000 - 1,800,000 \rightarrow$$

$$= 551,000$$

shares held by those attending

$$\frac{551,000}{2,351,000} = .23 = 23\%$$

12) A private corporation owned by 35 shareholders is worth \$1.7 million. The corporation loses a lawsuit worth \$3 million. What is the value of any personal property of the shareholders that can be taken to pay the settlement? Explain. *Shareholders have limited liability and cannot lose more than the value of the stock!*

13) A partnership owned equally by 13 partners is worth \$1.3 million. The partnership loses a lawsuit worth \$3 million. What is the value of any personal property each partner must forfeit to pay the settlement? Explain. *Partners are personally liable for any loss.*

14) A sole proprietorship is worth w dollars. The owner loses a lawsuit against him for y dollars where y is greater than w . Express algebraically the value of the personal property the owner must forfeit to pay the settlement. $P = y - w$

15) Six equal partners own a local pizzeria. The partners have made a tremendous profit and bought many personal items such as cars, boats, new homes, and so on. In order to protect their personal possessions, they decide to incorporate the pizzeria, so that the six partners own shares in the corporation and have limited liability. The business is worth \$675,000. After an accident, the partners lose a lawsuit and have to pay \$1.2 million in damages. How much money will each partner personally lose to pay this lawsuit? Explain. *\$0 - they are now shareholders and do not have personal liability*

16) Three people invest in a business. The first two invest in the ratio 2:3, and the third person invests twice as much as the other two combined. The total invested is \$30 million.

- a. How much did the major investor contribute? $10x \Rightarrow 10(2,000,000) = 20,000,000$
- b. Does the major investor own more than half the business? *Yes*
- c. What fraction of the business does the major investor own? $\frac{20,000,000}{30,000,000} = \frac{2}{3}$

17) Ten years ago, Lisa bought a hair salon for x dollars. She built up the business and it is now worth nine times what she paid for it. She decides to sell half of the business to a friend, and they become partners. Express the amount Lisa's friend must pay Lisa to buy half the business. $F = \frac{9x}{2}$

18) Four people invested in a restaurant. One person invested \$100,000. Two others invested in the ratio $x:2x$, and the fourth person invested an amount equal to the other three investors combined. The total investment was \$1,100,000.

- a. Write an expression for the amount invested by the fourth person. $D = 100,000 + 3x$
- b. Write an equation that allows you to find the amount invested by each person. $6x + 200,000 = 1,100,000$
- c. How much did each person invest?

$$A = 100,000 \quad B = 150,000 \quad C = 2(150,000) = 300,000$$

$$D = 100,000 + 3(150,000) = 550,000$$

$$3,000,000 - 1,300,000 = 1,700,000$$

$$\frac{1,700,000}{13}$$

$$130,769.23 \text{ each!}$$

$$A + B + C = 30,000,000$$

$$2x + 3x + 2(2x + 3x) = 30,000,000$$

$$5x + 10x = 30,000,000$$

$$15x = 30,000,000$$

$$x = 2,000,000$$

$$16) A + B + C + D = 1,100,000$$

$$100,000 + x + 2x + (100,000 + x + 2x) = 1,100,000$$

$$6x + 200,000 = 1,100,000$$

$$6x = 900,000$$

$$x = 150,000$$