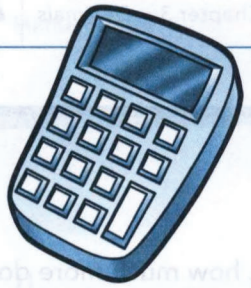


Chapter 4

Fractions

GED Mathematics pp. 103–136
Complete GED pp. 747–774

Basic Skills

Directions: Use the following list of words to fill in the blanks for problems 1–10.

numerator	denominator	common denominators
proper	improper	mixed number
reducing	reciprocal	raising to higher terms
inverse	canceling	

1. The top number in a fraction is called the _____.
2. The bottom number in a fraction is called the _____.
3. A fraction that is greater than or equal to 1 is called an _____ fraction.
4. A fraction whose numerator is less than the denominator is called a _____ fraction.
5. The number $5\frac{1}{2}$ is an example of a _____.
6. To change a fraction to an equivalent fraction with a larger denominator is called _____.
7. To multiply the fractions $\frac{3}{5} \times \frac{7}{12}$, you can first divide both 3 and 12 by 3. This operation is called _____.
8. To express the fraction $\frac{8}{10}$ in simpler terms, you can divide both 8 and 10 by 2. This operation is called _____.
9. For the fractions $\frac{5}{6}$ and $\frac{1}{4}$, both denominators divide evenly into 12, 24, and 36. Therefore, 12, 24, and 36 are called _____ _____ of $\frac{5}{6}$ and $\frac{1}{4}$.
10. To divide 12 by $\frac{2}{3}$, you can multiply 12 by $\frac{3}{2}$. Therefore, $\frac{3}{2}$ is called the _____ or the _____ of $\frac{2}{3}$.

Solve each problem.

11. Which fractions in this list are equal to $\frac{1}{2}$? $\frac{5}{8}$ $\frac{7}{14}$ $\frac{11}{22}$ $\frac{1}{3}$ $\frac{13}{26}$

12. Which fractions in this list are greater than $\frac{1}{2}$? $\frac{7}{9}$ $\frac{2}{5}$ $\frac{4}{7}$ $\frac{8}{13}$ $\frac{9}{18}$

13. Which fractions in this list are less than $\frac{1}{2}$? $\frac{5}{12}$ $\frac{7}{20}$ $\frac{8}{16}$ $\frac{11}{20}$ $\frac{7}{24}$

14. Reduce each fraction to lowest terms. $\frac{8}{10}$ $\frac{6}{36}$ $\frac{35}{40}$ $\frac{20}{300}$ $\frac{18}{100}$

15. Raise $\frac{4}{5}$ to an equivalent fraction with a denominator of 30.

16. Change $4\frac{2}{3}$ to an improper fraction.

17. Change 0.035 to a fraction and reduce.

18. Express $\frac{5}{12}$ as a decimal rounded to the nearest thousandth.

19. For the problem $5\frac{1}{2} + 6\frac{3}{8} + 2\frac{3}{4}$, round each number to the nearest whole number. Then add the rounded numbers.

20. Find the exact answer to the last problem.

21. For the problem $8\frac{1}{3} - 2\frac{3}{4}$, round each number to the nearest whole number. Then subtract the rounded numbers.

22. Find the exact answer to the last problem.

23. Find $\frac{2}{3}$ of 45.

24. For the problem $1\frac{2}{3} \times 2\frac{1}{4}$, round each number to the nearest whole number. Then find the product of the rounded numbers.

25. Find the exact answer to the last problem.

26. What is $5\frac{1}{3} \div 1\frac{1}{3}$?

27. Evaluate $\left(\frac{3}{5}\right)^2$.

28. What is $\sqrt{\frac{25}{36}}$?

29. Write 0.00038 in scientific notation.

30. Express 2.6×10^{-5} as a decimal.

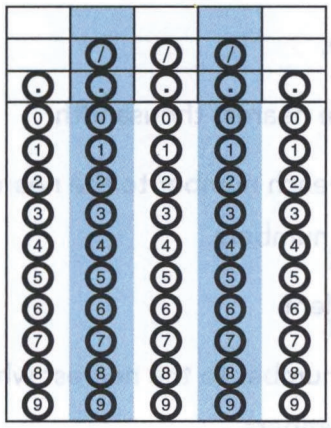
Answers are on page 135.

GED PRACTICE

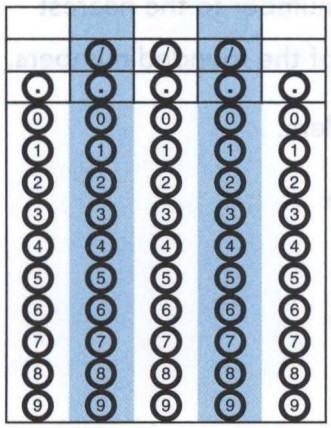
PART I

Directions: You may use a calculator to solve the following problems. For problems 1–3, mark each answer on the corresponding number grid.

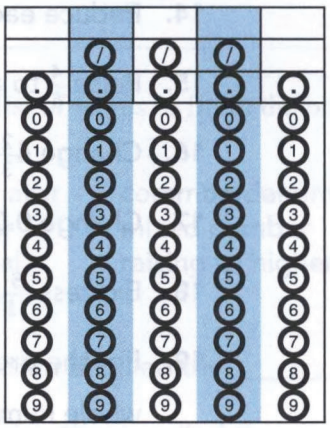
1. From a 5-foot board, Howard cut a piece $4\frac{1}{4}$ feet long. What was the length, in feet, of the remaining piece?



2. Together, Mr. and Mrs. Vega take home $3000 a month. Each month they put $200 into a savings account. What fraction of their take-home income do they save?



3. Altogether, 384 students are registered for evening classes at Central County High School. Of these students, 256 have full-time jobs. What fraction of the students in evening classes have full-time jobs?



Choose the correct answer to each problem.

4. Assuming no waste, how many strips, each $3\frac{1}{2}$ inches wide, can be cut from a board that is 21 inches wide?

(1) 2
(2) 4
(3) 5
(4) 6
(5) 7

5. Marcia paid $\frac{1}{10}$ of the asking price of $94,000 as a down payment on a previously owned home. How much was the down payment?

(1) $3133
(2) $4700
(3) $5800
(4) $6267
(5) $9400

6. Jane wants to can her cooked apples. Each jar will hold $\frac{3}{4}$ pound of apples. How many jars can she fill from 12 pounds of apples?

(1) 20
(2) 18
(3) 16
(4) 14
(5) 12

7. James has paid $\frac{2}{3}$ of his car loan. So far he has paid $3600. How much did he borrow?

(1) $1200
(2) $2400
(3) $3200
(4) $4800
(5) $5400

8. In the last problem, how much more does James owe on his car loan?

(1) $1200
(2) $1800
(3) $2400
(4) $3200
(5) $3600

9. A pie recipe calls for $\frac{2}{3}$ cup of sugar. How many cups of sugar are required to make five pies?

(1) $1\frac{2}{3}$
(2) $2\frac{2}{3}$
(3) $3\frac{1}{3}$
(4) $3\frac{2}{3}$
(5) $4\frac{1}{3}$

10. Carl paid $7.50 for $1\frac{1}{4}$ pounds of lamb chops. What was the price per pound?

(1) $3
(2) $4
(3) $5
(4) $6
(5) $7

11. A professional basketball team won 48 games and lost 32. What fraction of the games did the team win?

(1) $\frac{5}{6}$
(2) $\frac{3}{4}$
(3) $\frac{2}{3}$
(4) $\frac{3}{5}$
(5) $\frac{2}{5}$

12. Mr. Stone wants to hang 4 shelves, each $15\frac{1}{2}$ inches long, in his bathroom. Assuming no waste, how many inches of shelving does he need?

(1) 62
(2) 60
(3) 58
(4) 56
(5) 54

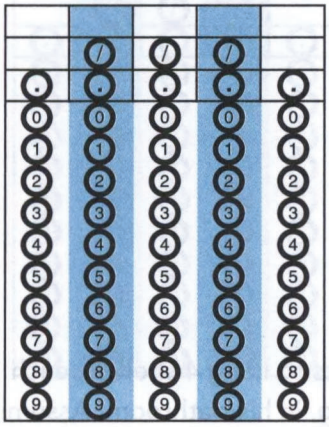
13. A sheet of copy paper is $\frac{1}{250}$ inch thick. Express the thickness in scientific notation.

(1) 4×10^{-2}
(2) 4×10^{-3}
(3) 4×10^{-4}
(4) 4×10^{-5}
(5) 4×10^{-6}

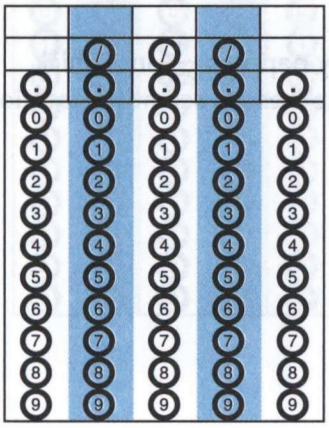
PART II

Directions: Solve the following problems without a calculator. For problems 13 and 14, mark each answer on the corresponding number grid.

14. There are 24 students in Alfonso's Spanish class. Of these students, 21 passed their finals with a score of 80 or higher. What fraction of the students passed with a score of 80 or higher?



15. The Richardsons spend $\frac{1}{4}$ of their income on rent, $\frac{1}{3}$ on food, $\frac{1}{6}$ on transportation costs, and another $\frac{1}{6}$ on clothes. Together, these expenses make up what fraction of the Richardsons' budget?



Choose the correct answer to each problem.

16. The Richardsons in the last problem take home $2413 a month. Approximately how much do they spend each month on food?

(1) $300
(2) $450
(3) $650
(4) $800
(5) $925

17. Jake wants to buy a motorbike that costs $5000. So far he has saved $\frac{2}{3}$ of the price of the motorbike. To the nearest 10 dollars, how much has Jake saved?

(1) $4260
(2) $3750
(3) $3330
(4) $2950
(5) $2190

18. From a 2-pound box of sugar, Anne used $1\frac{1}{8}$ pounds to bake cupcakes for her son's school birthday party and then another $\frac{1}{2}$ pound for a cake for the family's party at home. How many pounds of sugar were left in the box?

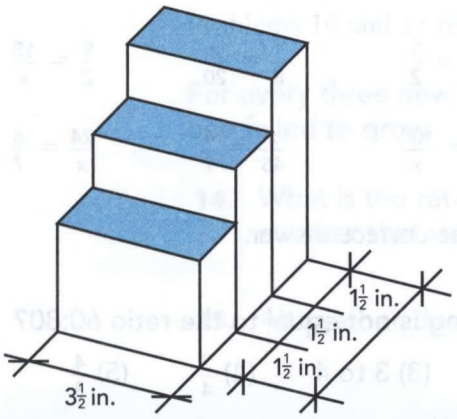
(1) $\frac{3}{8}$
(2) $\frac{1}{2}$
(3) $\frac{3}{4}$
(4) $\frac{7}{8}$
(5) 1

19. Which of the following best represents a way to approximate the cost of $1\frac{7}{8}$ pounds of chicken that cost \$4.99 per pound?

(1) $1 \times \$4 = \$4$
(2) $1 \times \$5 = \$5$
(3) $2 \times \$4 = \$8$
(4) $2 \times \$5 = \$10$
(5) $3 \times \$5 = \$15$

20. Builders often use lumber called 2-by-4s for house construction. The numbers refer to the cross-sectional dimensions of the wood before it is dried and planed. In fact, a 2-by-4 is only $1\frac{1}{2}$ inches by $3\frac{1}{2}$ inches. The illustration shows three 2-by-4s that are nailed together to form a corner column of a house. What is the total depth, in inches, of the three boards?

(1) 12
(2) $10\frac{1}{2}$
(3) 9
(4) $4\frac{1}{2}$
(5) 3



21. A microbe is 2.6×10^{-5} meter long. Which of the following expresses the length of the microbe in meters?

(1) 2.6
(2) 0.026
(3) 0.0026
(4) 0.00026
(5) 0.000026

22. Oxygen makes up $\frac{13}{20}$ of the weight of the human body, and hydrogen makes up $\frac{1}{10}$ of the weight. Together, these two elements make up what fraction of the total weight of the human body?

(1) $\frac{3}{4}$
(2) $\frac{2}{3}$
(3) $\frac{3}{5}$
(4) $\frac{1}{2}$
(5) $\frac{2}{5}$

23. According to the information in the last problem, a man who weighs 179 pounds is made up of approximately how many pounds of hydrogen?

(1) 12
(2) 15
(3) 18
(4) 21
(5) 24

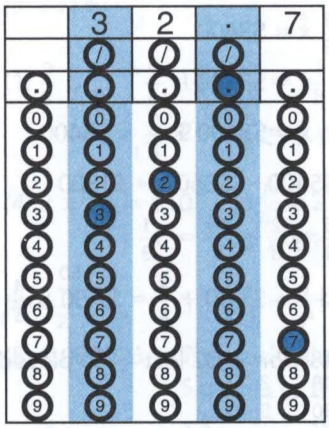
24. Steve is a builder. He asks his clients to pay $\frac{1}{4}$ of the price of the whole job at the beginning, $\frac{1}{2}$ in six weeks, and the rest when the job is completed. For a new garage, the initial payment was \$6500. What is the total price of the job?

(1) \$20,000
(2) \$26,000
(3) \$30,000
(4) \$32,000
(5) \$36,000

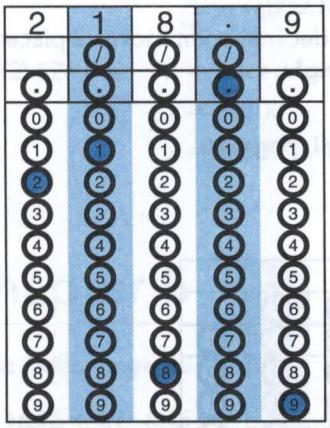
Answers are on page 136.

GED Practice, Part II, page 40

13. 32.7 $964.5 - 931.8 = 32.7$ million acres



14. 218.9 $2.189 \times 100 = 218.9$ pounds



15. (1) $30 - 2(12.3)$

16. (3) 750,000 $1.8 - 1.05 = 0.75$ million $= 750{,}000$

17. (2) D, E, A, C, B

D = 0.050
E = 0.054
A = 0.400
C = 0.450
B = 0.540

18. (3) 1.125 $1.875 - 0.75 = 1.125$ inches

19. (5) $20 - 2.5(4.99)$

20. (3) \$38.00 $20 \times \$1.90 = \$38.00$

21. (5) \$5.30

$10 \times \$2.02 = \$20.20$
$10 \times \$1.49 = \$14.90$
$\$20.20 - \$14.90 = \$5.30$

22. (2) 2.822×10^9 The decimal point moves 9 places to the left.

23. (2) 58,400,000 The decimal point moves 7 places to the right.

24. (3) 584,000 $\frac{58{,}400{,}000}{100} = 584{,}000$

Chapter 4

Basic Skills, page 42

1. numerator
2. denominator
3. improper
4. proper
5. mixed number
6. raising to higher terms
7. canceling
8. reducing
9. common denominators
10. inverse or reciprocal

11. $\frac{7}{14}$ $\frac{11}{22}$ $\frac{13}{26}$

12. $\frac{7}{9}$ $\frac{4}{7}$ $\frac{8}{13}$

13. $\frac{5}{12}$ $\frac{7}{20}$ $\frac{7}{24}$

14. $\frac{8}{10} = \frac{4}{5}$ $\frac{6}{36} = \frac{1}{6}$ $\frac{35}{40} = \frac{7}{8}$ $\frac{20}{300} = \frac{1}{15}$ $\frac{18}{100} = \frac{9}{50}$

15. $\frac{4}{5} = \frac{24}{30}$

16. $4\frac{2}{3} = \frac{14}{3}$

17. $0.035 = \frac{35}{1000} = \frac{7}{200}$

18. $\frac{5}{12} = 0.4166 \rightarrow 0.417$

19. $6 + 6 + 3 = 15$

20.
$$5\tfrac{1}{2} = 5\tfrac{4}{8}$$
$$6\tfrac{3}{8} = 6\tfrac{3}{8}$$
$$+2\tfrac{3}{4} = 2\tfrac{6}{8}$$
$$13\tfrac{13}{8} = 14\tfrac{5}{8}$$

21. $8 - 3 = 5$

22.
$$8\tfrac{1}{3} = 8\tfrac{4}{12} = 7\tfrac{4}{12} + \tfrac{12}{12} = 7\tfrac{16}{12}$$
$$-2\tfrac{3}{4} = 2\tfrac{9}{12} = \qquad 2\tfrac{9}{12}$$
$$5\tfrac{7}{12}$$

23. $\frac{2}{\cancel{3}_{1}} \times \frac{\overset{15}{\cancel{45}}}{1} = \frac{30}{1} = 30$

24. $2 \times 2 = 4$

25. $1\frac{2}{3} \times 2\frac{1}{4} = \frac{5}{\cancel{3}_{1}} \times \frac{\overset{3}{\cancel{9}}}{4} = \frac{15}{4} = 3\frac{3}{4}$

26. $5\frac{1}{3} \div 1\frac{1}{3} = \frac{16}{3} \div \frac{4}{3} = \frac{\overset{4}{\cancel{16}}}{\cancel{3}_{1}} \times \frac{1}{\cancel{4}_{1}} = 4$

27. $(\frac{3}{5})^2 = \frac{3}{5} \times \frac{3}{5} = \frac{9}{25}$

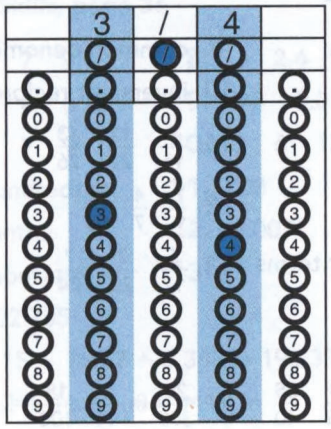
28. $\sqrt{\frac{25}{36}} = \frac{5}{6}$

29. $0.00038 = 3.8 \times 10^{-4}$
The decimal point moves 4 places to the right.

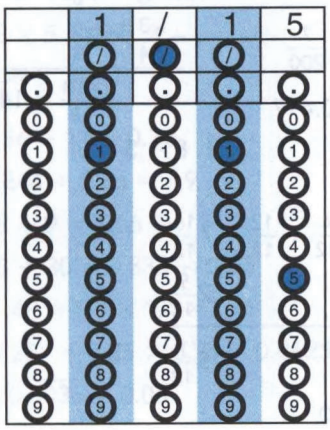
30. $2.6 \times 10^{-5} = 0.000026$
The decimal point moves 5 places to the left.

GED Practice, Part I, page 44

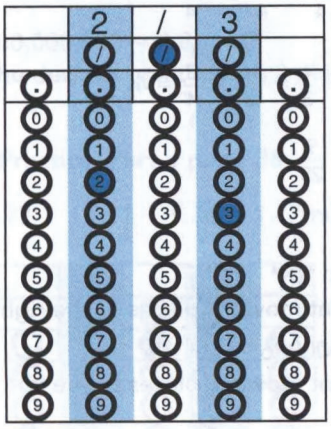
1. $\frac{3}{4}$ $\quad 5 - 4\frac{1}{4} = 4\frac{4}{4} - 4\frac{1}{4} = \frac{3}{4}$ ft



2. $\frac{1}{15}$ $\quad \frac{\$200}{\$3000} = \frac{1}{15}$



3. $\frac{2}{3}$ $\quad \frac{256}{384} = \frac{2}{3}$



4. (4) 6 $\quad 21 \div 3\frac{1}{2} = 21 \div \frac{7}{2} =$

$$\frac{\overset{3}{\cancel{21}}}{1} \times \frac{2}{\underset{1}{\cancel{7}}} = \frac{6}{1} = 6$$

5. (5) \$9400 $\quad \frac{1}{\underset{1}{\cancel{10}}} \times \frac{\overset{9400}{\cancel{94,000}}}{1} = \$9400$

6. (3) 16 $\quad 12 \div \frac{3}{4} = \frac{\overset{4}{\cancel{12}}}{1} \times \frac{4}{\underset{1}{\cancel{3}}} = 16$

7. (5) \$5400 $\quad x =$ car loan

$$\frac{2}{3}x = \$3600$$

$$x = \$3600 \div \frac{2}{3}$$

$$x = \cancel{\$3600}^{1800} \times \frac{3}{\underset{1}{\cancel{2}}} = \$5400$$

8. (2) \$1800 $\quad \$5400 - \$3600 = \$1800$

9. (3) $3\frac{1}{3}$ $\quad \frac{5}{1} \times \frac{2}{3} = \frac{10}{3} = 3\frac{1}{3}$

10. (4) \$6 $\quad \$7.50 \div 1\frac{1}{4} = \$7.50 \div \frac{5}{4} = \cancel{\$7.50}^{1.50} \times \frac{4}{\underset{1}{\cancel{5}}} = \$6$

11. (4) $\frac{3}{5}$ $\quad 48$ won + 32 lost = 80 played

$$\frac{48}{80} = \frac{3}{5}$$

12. (1) 62 $\quad 4 \times 15\frac{1}{2} = \frac{\overset{2}{\cancel{4}}}{1} \times \frac{31}{\underset{1}{\cancel{2}}} = 62$ inches

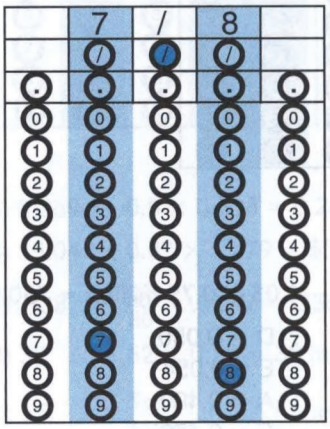
13. (2) 4×10^{-3} $\quad 0.004 = 4 \times 10^{-3}$

$250\overline{)1.000}$

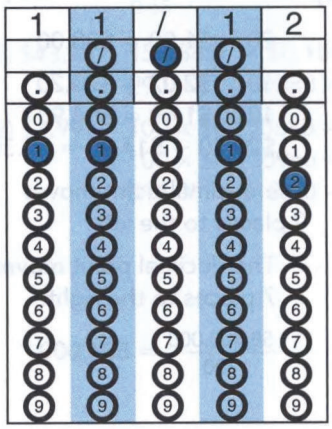
The decimal point moves 3 places to the right.

GED Practice, Part II, page 46

14. $\frac{7}{8}$ $\quad \frac{21}{24} = \frac{7}{8}$



15. $\frac{11}{12}$ $\quad \frac{1}{4} + \frac{1}{3} + \frac{1}{6} + \frac{1}{6} = \frac{3}{12} + \frac{4}{12} + \frac{2}{12} + \frac{2}{12} = \frac{11}{12}$



16. (4) \$800 $\$2413 \rightarrow \$2400$
$\frac{1}{3} \times \$2400 = \$800$

17. (3) \$3330 $\frac{2}{3} \times \frac{5000}{1} = \frac{10{,}000}{3} = \$3333\frac{1}{3} \rightarrow \$3330$

18. (1) $\frac{3}{8}$ $1\frac{1}{8} + \frac{1}{2} = 1\frac{1}{8} + \frac{4}{8} = 1\frac{5}{8}$
$2 - 1\frac{5}{8} = \frac{3}{8}$ pound

19. (4) $2 \times \$5 = \$10$ $1\frac{7}{8} \rightarrow 2$ and $\$4.99 \rightarrow \$5$
$2 \times \$5 = \$10$

20. (4) $4\frac{1}{2}$ $3 \times 1\frac{1}{2} = \frac{3}{1} \times \frac{3}{2} = \frac{9}{2} = 4\frac{1}{2}$ inches

21. (5) 0.000026 The decimal point moves 5 places to the left.

22. (1) $\frac{3}{4}$ $\frac{13}{20} + \frac{1}{10} = \frac{13}{20} + \frac{2}{20} = \frac{15}{20} = \frac{3}{4}$

23. (3) 18 $179 \rightarrow 180$
$\frac{1}{10} \times 180 = 18$ pounds

24. (2) \$26,000 x = price of entire job
$\frac{1}{4}x = \$6500$
$x = \$6500 \times 4 = \$26{,}000$

Chapter 5

Basic Skills, page 48

1. $16:28 = 4:7$ $6:45 = 2:15$ $72:63 = 8:7$ $8:600 = 1:75$

2. \$60 to \$100 = \$3 to \$5 2 to 500 = 1 to 250
75 to 3 = 25 to 1 28 to 56 = 1 to 2

3. $\frac{38}{18} = \frac{19}{9}$ $\frac{1.3}{5.2} = \frac{1}{4}$ $\frac{12{,}000}{42{,}000} = \frac{2}{7}$ $\frac{65}{15} = \frac{13}{3}$

4.

$\frac{x}{5} = \frac{7}{9}$	$\frac{12}{x} = \frac{5}{2}$	$\frac{1}{8} = \frac{x}{20}$	$\frac{9}{2} = \frac{15}{x}$
$9x = 35$	$5x = 24$	$8x = 20$	$9x = 30$
$x = 3\frac{8}{9}$	$x = 4\frac{4}{5}$	$x = 2\frac{1}{2}$	$x = 3\frac{1}{3}$

5.

$\frac{3}{20} = \frac{x}{120}$	$\frac{8}{5} = \frac{100}{x}$	$\frac{x}{45} = \frac{4}{9}$	$\frac{24}{x} = \frac{6}{7}$
$20x = 360$	$8x = 500$	$9x = 180$	$6x = 168$
$x = 18$	$x = 62\frac{1}{2}$	$x = 20$	$x = 28$

6. (5) $\frac{4}{3}$

7. (3) $9 \times 8 = 12 \times 6$

8. (2) $7 \times x = 5 \times 3$

9. new:used = 21:15 = 7:5

10. 21 new + 15 used = 36 total
used:total = 15:36 = 5:12

11. new:total = 21:36 = 7:12

12. 4 right + 1 wrong = 5 total
right:total = 4:5

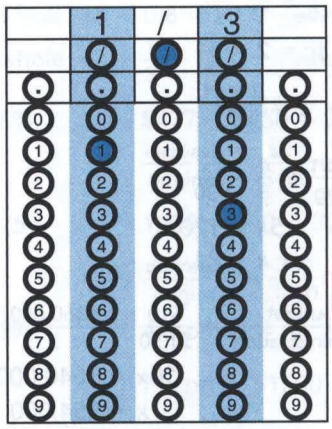
13. $\frac{\text{right}}{\text{total}} = \frac{4}{5} = \frac{x}{60}$
$5x = 240$
$x = 48$

14. 3 grew + 1 failed = 4 total
grew:planted = 3:4

15. $\frac{\text{grew}}{\text{planted}} = \frac{3}{4} = \frac{x}{24}$
$4x = 72$
$x = 18$

GED Practice, Part I, page 50

1. $\frac{1}{3}$ $\frac{\text{mortgage}}{\text{other}} = \frac{\$620}{\$1860} = \frac{1}{3}$



2. $\frac{1}{4}$

mortgage + other = \$620 + \$1860 = \$2480 total

$\frac{\text{mortgage}}{\text{total}} = \frac{\$620}{\$2480} = \frac{1}{4}$