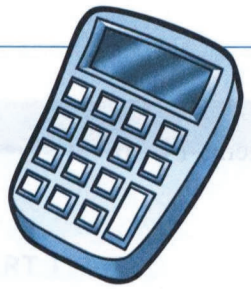


Chapter 6

Percent

GED Mathematics pp. 149–182
Complete GED pp. 793–808

Basic Skills

Directions: Write each percent as a fraction in lowest terms.

1. 25% = 50% = 75% =
2. 20% = 40% = 60% = 80% =
3. $33\frac{1}{3}\%$ = $66\frac{2}{3}\%$ =
4. $12\frac{1}{2}\%$ = $37\frac{1}{2}\%$ = $62\frac{1}{2}\%$ = $87\frac{1}{2}\%$ =

Write each percent as a decimal.

5. 1% = 10% = 100% = 1000% =
6. 25% = 50% = 75% =
7. 20% = 40% = 60% = 80% =
8. 8% = 4.5% = 85% = 110% =
9. Which of the following is *not* equal to 50%? $\frac{1}{2}$ 0.5 $\frac{1}{5}$ $\frac{3}{6}$
10. Which of the following is *not* equal to 100%? 1 2 $\frac{2}{2}$ 1.0

Use the statement "25% of 32 is 8" to answer problems 11–13.

11. The part is _____.
12. The percent is _____.
13. The whole is _____.

Use the statement "35 is 1% of 3500" to answer problems 14–16.

14. The part is _____.

15. The percent is _____.

16. The whole is _____.

For problems 17–22, first tell whether you are looking for the *part,* the *percent,* or the *whole.* Then solve each problem.

17. 50% of 66 = $\quad 33\frac{1}{3}\%$ of 120 = $\quad$ 80% of 35 =

18. 10% of 325 = $\quad$ 40% of 90 = $\quad$ 6.5% of 200 =

19. 8 is what % of 32? $\quad$ What % of 38 is 19?

20. 10 is what % of 200? $\quad$ What % of 36 is 12?

21. 16 is 80% of what number? $\quad$ 50% of what number is 17?

22. 40 is $33\frac{1}{3}\%$ of what number? $\quad$ 60% of what number is 150?

Solve the following problems.

23. The Rogers family's rent went from $450 a month last year to $477 a month this year. By what percent did their rent increase?

24. On the opening day of a crafts fair, 1200 people bought admissions tickets. On the second day, there was heavy rain, and only 900 people bought tickets. By what percent did the attendance drop the second day?

25. Calculate the interest on $1500 at 14% annual interest for 4 months.

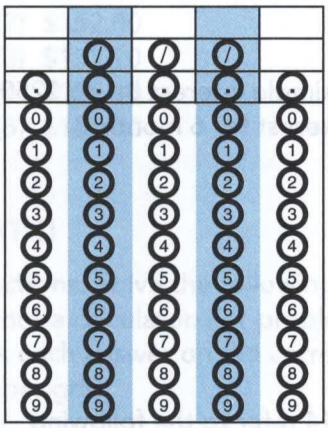
Answers are on page 139.

GED PRACTICE

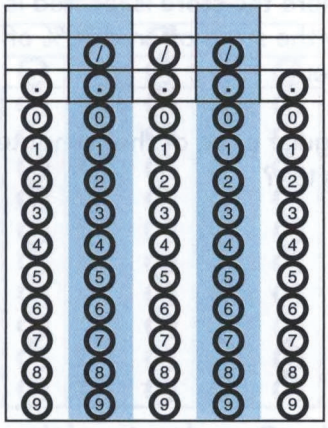
PART I

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

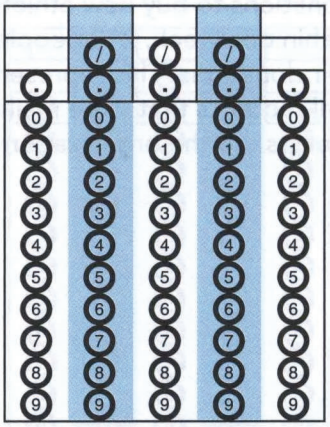
1. Change 15% to a common fraction and reduce to lowest terms.



2. What is 8.7% of 40?



3. 9.3 is 60% of what number?



Choose the correct answer to each problem.

4. The price of a gallon of heating oil rose from \$1.60 a gallon to \$1.92. By what percent did the price increase?

(1) 5%
(2) 10%
(3) 15%
(4) 20%
(5) 25%

5. In 1990 there were 40 members in the County Rowing Club. In 2000 the club had 70 members. By what percent did the membership increase?

(1) 55%
(2) 60%
(3) 65%
(4) 70%
(5) 75%

6. A shirt is on sale for \$29.95. What will the sales tax on the shirt be if the sales tax rate is $7\frac{1}{2}$%?

(1) \$1.99
(2) \$2.10
(3) \$2.25
(4) \$2.99
(5) \$3.10

7. The Parent-Teacher Organization sent out requests for donations to buy new athletic equipment. Within one week, 210 people had sent in their donations. This represents 15% of the total requests that were mailed. How many requests did the organization send out?

(1) 2100
(2) 1400
(3) 1050
(4) 640
(5) 315

8. Of the 30 students in Bob's exercise class, 80% drive to class. The rest walk or ride bicycles. How many of the students do not drive to the class?

(1) 6
(2) 8
(3) 12
(4) 15
(5) 20

9. Kyle bought a boat for $4500. Five years later he sold it for $3600. What percent of the purchase price did Kyle lose?

(1) 5%
(2) 9%
(3) 11%
(4) 15%
(5) 20%

10. Phil and Barbara's house has a floor area of 1600 square feet. Phil put on an addition with a floor area of 600 square feet. By what percent does the addition increase the area of the house?

(1) 30%
(2) 50%
(3) $37\frac{1}{2}\%$
(4) 60%
(5) $62\frac{1}{2}\%$

11. Adrienne had to pay $5.40 sales tax on a pair of ski boots. The sales tax rate in her state is 4.5%. What was the price of the boots?

(1) $120
(2) $100
(3) $ 90
(4) $ 85
(5) $ 45

12. What will the simple interest be on $2500 at $8\frac{1}{2}\%$ annual interest for 6 months?

(1) $212.50
(2) $158.00
(3) $127.50
(4) $106.25
(5) $ 70.80

Problems 13 and 14 refer to the following information.

A store offered a computer for $998. The sales tax in the state where the store is located is 6%. On Labor Day the store offered 10% off all electronic equipment.

13. What is the regular price of the computer, including sales tax?

(1) $ 938.12
(2) $ 998.06
(3) $1004.00
(4) $1057.88
(5) $1097.80

14. What is the Labor Day sale price of the computer, not including tax?

(1) $848.30
(2) $898.20
(3) $938.12
(4) $948.10
(5) $988.00

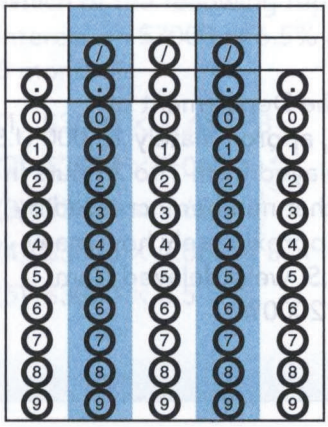
15. A hardware store offered a lawn mower for $180 during the summer. On Labor Day they offered garden equipment at 10% off the regular price, but later in September they offered an additional 5% off the Labor Day sale price for all garden equipment. Find the late September sale price of the lawn mower.

(1) $149.10
(2) $152.00
(3) $153.90
(4) $159.10
(5) $165.00

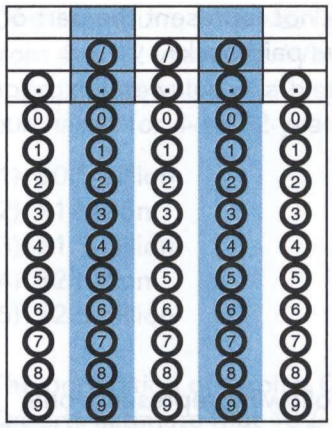
PART II

Directions: Solve the following problems without a calculator. For problems 16 and 17, mark each answer on the corresponding number grid.

16. Change 175% to a decimal.



17. Find 2% of 140. Express your answer as a decimal.



Choose the correct answer to each problem.

18. Mr. Sanchez weighed 220 pounds. He went on a diet and lost 20% of his weight. Find his new weight in pounds.

(1) 200
(2) 180
(3) 176
(4) 160
(5) 155

19. An outdoor barbecue is on sale for $139. Which expression represents the price of the barbecue, including a 6% sales tax?

(1) $0.6 \times \$139$
(2) $0.06 \times \$139$
(3) $1.6 \times \$139$
(4) $1.06 \times \$139$
(5) $0.16 \times \$139$

20. Bonnie borrowed $800 from her sister. So far she has paid back $480. Which of the following does *not* represent the part of the loan Bonnie has paid back?

(1) $\frac{480}{800}$
(2) 60%
(3) 0.6
(4) $\frac{3}{5}$
(5) $\frac{48}{100}$

21. Which of the following represents one month's interest on an outstanding credit card debt of $2700 if the annual interest rate is 18%?

(1) $\frac{\$2700 \times 0.18}{12}$
(2) $\frac{12 \times 0.18}{\$2700}$
(3) $\frac{\$2700 \times 12}{0.18}$
(4) $\frac{\$2700 \times 1.8}{12}$
(5) $\frac{\$2700 \times 18}{12}$

22. On July 4th a furniture store is selling everything for 10% off the regular price. Which expression represents the sale price of a garden chair that regularly sold for $16.95?

(1) $0.1 \times \$16.95$
(2) $1.1 \times \$16.95$
(3) $0.9 \times \$16.95$
(4) $0.8 \times \$16.95$
(5) $0.01 \times \$16.95$

23. An advertisement for new high-speed Internet access claims that pages will load up to 5000% faster. Which of the following is the same as 5000% faster?

(1) 0.5 times faster
(2) 5 times faster
(3) 50 times faster
(4) 500 times faster
(5) 5000 times faster

24. Membership in a concerned citizens organization went from 60 in 1999 to 115 in 2001. To calculate the percent of increase in membership, multiply 100% by which of the following expressions?

(1) $\frac{60 - 115}{115}$
(2) $\frac{115 - 60}{60}$
(3) $\frac{115 - 60}{115}$
(4) $\frac{60}{115}$
(5) $\frac{115}{60}$

25. According to the Department of Transportation, approximately 15,000 U.S. flights were delayed from 1 to 2 hours in 1995. In 2000 that number increased by about 150%. Approximately how many flights in the U.S. were delayed from 1 to 2 hours in 2000?

(1) 20,000
(2) 22,500
(3) 27,500
(4) 32,500
(5) 37,500

26. A technology stock sold for $80 a share. Then, after the company announced that they would fail to meet sales expectations, the price of a share dropped by 60%. What was the price of a share after the announcement?

(1) $74
(2) $54
(3) $48
(4) $32
(5) $28

27. Mr. and Mrs. Gonzalez bought their house in 1971 for $25,000. In order to move into a retirement home, they sold the house in 2001 for $200,000. By what percent did the price of the house increase from 1971 to 2001?

(1) 700%
(2) 500%
(3) 350%
(4) 140%
(5) 70%

28. Which of the following represents the simple interest on $3000 at 6.5% annual interest for 8 months?

(1) $\$3000 \times 0.65 \times 8$
(2) $\$3000 \times 0.065 \times \frac{2}{3}$
(3) $\$3000 \times 0.65 \times \frac{3}{2}$
(4) $\$3000 \times 0.065 \times 8$
(5) $\$3000 \times 6.5 \times \frac{2}{3}$

29. In a recent year, the total value of athletic shoes sold in the U.S. was about $15 billion. Of this amount, 13% was for children from 4 to 12 years old. What was the approximate value of athletic shoes purchased for 4- to 12-year-old children?

(1) $0.5 billion
(2) $1 billion
(3) $1.5 billion
(4) $2 billion
(5) $2.5 billion

30. The population of Capital County is 492,385. Experts estimate that 10% of the population of the county immigrated from other countries. About how many people in the county immigrated from other countries?

(1) 75,000
(2) 60,000
(3) 50,000
(4) 40,000
(5) 35,000

Answers are on page 139.

19. (3) 72 $\frac{\text{height}}{\text{shadow}} = \frac{9}{2.5} = \frac{x}{20}$

$2.5x = 180$

$x = 72$

20. (3) 95 $312 + 193 = 505$

$600 - 505 = 95$

21. (4) 3:2 $312 \rightarrow 300$ and $193 \rightarrow 200$

for:against = 300:200 = 3:2

22. (5) 1:6 $95 \rightarrow 100$

undecided:total = 100:600 = 1:6

23. (1) 1:2 sand:gravel = 2:4 = 1:2

24. (1) 1:6 sand + gravel = 2 + 4 = 6

cement:mixture = 1:6

25. (3) 290

cement + sand + gravel = 1 + 2 + 4 = 7 total

$\frac{\text{sand}}{\text{total}} = \frac{2}{7} = \frac{x}{1000}$

$7x = 2000$

$x = 285.7 \rightarrow 290$

26. (4) $x = \frac{4 \times 70}{5}$ $4:5 = x:70$

$5x = 4 \times 70$

$x = \frac{4 \times 70}{5}$

27. (4) \$4.50 $\$29.89 \rightarrow \$30$

$\frac{\text{tip}}{\text{total}} = \frac{0.15}{1} = \frac{x}{30}$

$x = \$4.50$

28. (3) 96 3 won + 2 lost = 5 played

$\frac{\text{won}}{\text{played}} = \frac{3}{5} = \frac{x}{160}$

$5x = 480$

$x = 96$

29. (2) 25 $\frac{\text{acres}}{\text{bushels}} = \frac{1}{120} = \frac{x}{3000}$

$120x = 3000$

$x = 25$

Chapter 6

Basic Skills, page 55

1. $\frac{1}{4}$ $\frac{1}{2}$ $\frac{3}{4}$

2. $\frac{1}{5}$ $\frac{2}{5}$ $\frac{3}{5}$ $\frac{4}{5}$

3. $\frac{1}{3}$ $\frac{2}{3}$

4. $\frac{1}{8}$ $\frac{3}{8}$ $\frac{5}{8}$ $\frac{7}{8}$

5. 0.01 0.1 1.0 10.0

6. 0.25 0.5 0.75

7. 0.2 0.4 0.6 0.8

8. 0.08 0.045 0.85 1.1

9. $\frac{1}{5}$

10. 2

11. 8

12. 25%

13. 32

14. 35

15. 1%

16. 3500

17. part; $\frac{1}{2} \times 66 = 33$ part; $\frac{1}{3} \times 120 = 40$

part; $\frac{4}{5} \times 35 = 28$

18. part; $0.1 \times 325 = 32.5$ part; $0.4 \times 90 = 36$

part; $0.065 \times 200 = 13$

19. percent; $\frac{8}{32} = \frac{1}{4} = 25\%$

percent; $\frac{19}{38} = \frac{1}{2} = 50\%$

20. percent; $\frac{10}{200} = \frac{1}{20} = 5\%$

percent; $\frac{12}{36} = \frac{1}{3} = 33\frac{1}{3}\%$

21. whole; $16 \div 0.8 = 20$ whole; $17 \div 0.5 = 34$

22. whole; $40 \div \frac{1}{3} = 120$ whole; $150 \div 0.6 = 250$

23. 6% \$477 − \$450 = \$27

$\frac{\text{increase}}{\text{original}} = \frac{\$27}{\$450} = \frac{3}{50} = 6\%$

24. 25% 1200 − 900 = 300

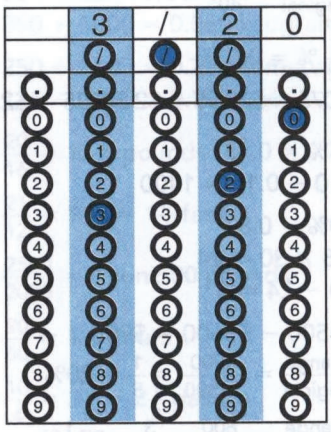
$\frac{\text{decrease}}{\text{original}} = \frac{300}{1200} = \frac{1}{4} = 25\%$

25. \$70 4 months $= \frac{4}{12} = \frac{1}{3}$ year

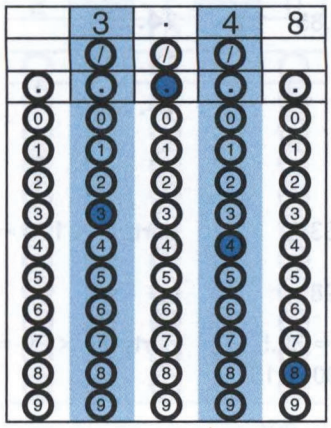
$i = prt = \$1500 \times 0.14 \times \frac{1}{3} = \$70$

GED Practice, Part I, page 57

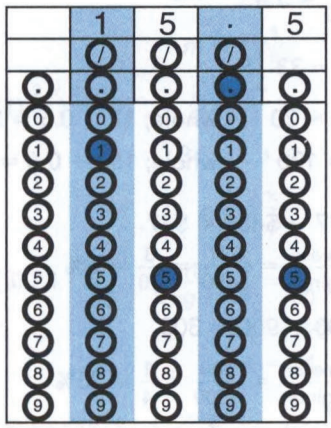
1. $\frac{3}{20}$ $15\% = \frac{15}{100} = \frac{3}{20}$



2. 3.48 $8.7\% = 0.087$
$0.087 \times 40 = 3.48$



3. 15.5 $60\% = 0.6$
$9.3 \div 0.6 = 15.5$



4. (4) 20% $\$1.92 - \$1.60 = \$0.32$
$\frac{\text{change}}{\text{original}} = \frac{\$0.32}{\$1.60} = 0.2 = 20\%$

5. (5) 75% $70 - 40 = 30$
$\frac{\text{change}}{\text{original}} = \frac{30}{40} = 0.75 = 75\%$

6. (3) \$2.25 $7\frac{1}{2}\% = 0.075$
$0.075 \times \$29.95 = \$2.24625 \rightarrow \$2.25$

7. (2) 1400 $15\% = 0.15$
$210 \div 0.15 = 1400$

8. (1) 6 $80\% = 0.8$
$0.8 \times 30 = 24$
$30 - 24 = 6$

9. (5) 20% $\$4500 - \$3600 = \$900$
$\frac{\text{change}}{\text{original}} = \frac{\$900}{\$4500} = \frac{1}{5} = 20\%$

10. (3) $37\frac{1}{2}\%$ $\frac{\text{change}}{\text{original}} = \frac{600}{1600} = \frac{3}{8} = 37\frac{1}{2}\%$

11. (1) \$120 $4.5\% = 0.045$
$\$5.40 \div 0.045 = \$120$

12. (4) \$106.25 $8\frac{1}{2}\% = 0.085$
6 months $= \frac{6}{12} = 0.5$ year
$i = prt$
$i = \$2500 \times 0.085 \times 0.5 = \$106.25$

13. (4) \$1057.88 $6\% = 0.06$
$0.06 \times \$998 = \$59.88$
$\$998 + \$59.88 = \$1057.88$
or $1.06 \times \$998 = \$1057.88$

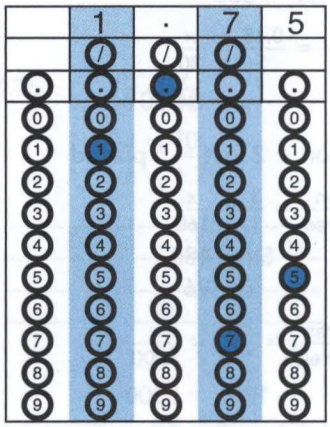
14. (2) \$898.20 $10\% = 0.1$
$0.1 \times \$998 = \$99.80$
$\$998 - \$99.80 = \$898.20$
or $0.9 \times \$998 = \$898.20$

15. (3) 153.90 First, $10\% = 0.1$
$0.1 \times \$180 = \$18$
$\$180 - \$18 = \$162$
or $0.9 \times \$180 = \$162$

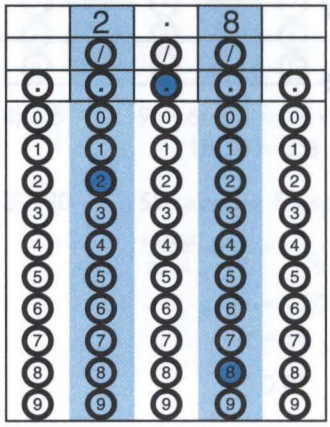
Second, $5\% = 0.05$
$0.05 \times \$162 = \$8.10$
$\$162 - \$8.10 = \$153.90$
or $0.95 \times \$162 = \$153.90$

GED Practice, Part II, page 59

16. 1.75 $175\% = 1.75$



17. 2.8 $2\% = 0.02$
$0.02 \times 140 = 2.8$



18. (3) 176
$20\% = 0.2$
$0.2 \times 220 = 44$
$220 - 44 = 176$

19. (4) $1.06 \times \$139$
The price is 100%.
The tax is 6%.
$100\% + 6\% = 106\% = 1.06$
The price is $1.06 \times \$139$.

20. (5) $\frac{48}{100}$
The other answers all equal $\frac{480}{800}$ or $\frac{3}{5}$.

21. (1) $\frac{\$2700 \times 0.18}{12}$
$18\% = 0.18$
$\$2700 \times 0.18$ for 1 year
Divide by 12 for one month.

22. (3) $0.9 \times \$16.95$
Original price is 100%.
Sale price is $100\% - 10\% = 90\% = 0.9$
The price is $0.9 \times \$16.95$.

23. (3) 50 times faster
To change 5000% to a whole number, move the decimal point 2 places to the left.

24. (2) $\frac{115 - 60}{60}$
The change is $115 - 60$.
The original membership is 60.

25. (5) 37,500
$150\% = 1.5$
$1.5 \times 15{,}000 = 22{,}500$
$15{,}000 + 22{,}500 = 37{,}500$

26. (4) \$32
$60\% = 0.6$
$0.6 \times \$80 = \$48$
$\$80 - \$48 = \$32$

27. (1) 700%
$\$200{,}000 - \$25{,}000 = \$175{,}000$
$\frac{\text{change}}{\text{original}} = \frac{\$175{,}000}{\$25{,}000} = \frac{7}{1} = 700\%$

28. (2) $\$3000 \times 0.065 \times \frac{2}{3}$
$6.5\% = 0.065$ and 8 months $= \frac{8}{12} = \frac{2}{3}$ year
$i = prt = \$3000 \times 0.065 \times \frac{2}{3}$

29. (4) \$2 billion
$13\% = 0.13$
$0.13 \times \$15$ billion $=$
$\$1.95 \rightarrow \$2$ billion

30. (3) 50,000
$492{,}385 \rightarrow 500{,}000$ and $10\% = 0.1$
$0.1 \times 500{,}000 = 50{,}000$

Chapter 7

Basic Skills, page 62

1. 1 foot (ft) = 12 inches (in.)
1 yard (yd) = 36 inches
1 yard = 3 feet
1 mile (mi) = 5280 feet
1 mile = 1760 yards

2. 1 pound (lb) = 16 ounces (oz)
1 ton (T) = 2000 pounds

3. 1 pint (pt) = 16 ounces
1 cup = 8 ounces
1 pint = 2 cups
1 quart (qt) = 2 pints
1 gallon (gal) = 4 quarts

4. 1 minute (min) = 60 seconds (sec)
1 hour (hr) = 60 minutes
1 day = 24 hours
1 week (wk) = 7 days
1 year (yr) = 365 days

5. $\frac{1200}{2000} = \frac{3}{5}$ ton $\frac{6}{24} = \frac{1}{4}$ day

6. $\frac{6}{12} = \frac{1}{2}$ foot $\frac{12}{16} = \frac{3}{4}$ pound

7. $\frac{45}{60} = \frac{3}{4}$ hour $\frac{1}{4}$ gallon

8. $\frac{21}{36} = \frac{7}{12}$ yard $\frac{4}{12} = \frac{1}{3}$ foot

9. $2 \times 16 = 32$ ounces $6 \times 12 = 72$ inches

10. $3 \times 60 = 180$ seconds $5 \times 3 = 15$ feet

11. $10 \times 2000 = 20{,}000$ pounds $3 \times 24 = 72$ hours

12. 1 meter (m) = 1000 millimeters (mm)
1 meter = 100 centimeters (cm)
1 kilometer = 1000 meters
1 decimeter (dm) = $\frac{1}{10}$ or 0.1 meter

13. 1 gram (g) = 1000 milligrams (mg)
1 kilogram (kg) = 1000 grams

14. 1 liter (L) = 1000 milliliters (mL)
1 deciliter (dL) = $\frac{1}{10}$ or 0.1 liter

15. $3.15 \times 1000 = 3150$ grams
$2 \times 1000 = 2000$ meters

16. $4 \times 100 = 400$ centimeters
$1.5 \times 1000 = 1500$ milliliters

17. $60 \div 100 = 0.6$ meter
$850 \div 1000 = 0.850$ kilogram

18. $250 \div 1000 = 0.25$ kilometer
$135 \div 1000 = 0.135$ liter

19. $\frac{20}{16} = 1.25$ pounds

20. $\frac{21}{12} = 1\frac{9}{12} = 1\frac{3}{4}$ feet

21. $\frac{2500}{2000} = 1$ ton 500 pounds

22. $\frac{90}{60} = 1.5$ hours

23. $\frac{10}{4} = 2\frac{2}{4} = 2\frac{1}{2}$ gallons

24. $\frac{5680}{5280} = 1$ mile 400 feet