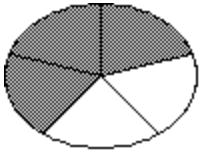


All exam answers are to be in simplest form. A scientific calculator may be used.  
No notes, no books, no homework may be used while taking this exam.  
Use blank spaces on the exam to show work. Attach all scratch paper to the exam.

Write a fraction to represent the shaded area of the figure.

1)



$$\frac{3}{5} \quad \frac{\text{shaded}}{\text{Total}}$$

$$\frac{\text{Part}}{\text{whole}}$$

Write the fraction in simplest form.

- 2) Of the 263 students at a high school, 40 are sophomores. What fraction of the students are sophomores?

$$\frac{40}{263} \text{ are sophomores}$$

Write the fraction in simplest form.

3)  $\frac{105}{135} \div 5 = \frac{21}{27} \div 3 = \frac{7}{9}$

4)  $-\frac{208}{221} \div 13 = \frac{-16}{17}$

Determine whether the pair of fractions is equivalent.

5)  $\frac{2}{5}$  and  $\frac{18}{45}$   $\frac{90}{90}$  yes, equivalent

compare cross products

6)  $\frac{5}{6}$  and  $\frac{35}{90}$   $\frac{450}{210}$  not equivalent

Find the prime factorization of the number.

7)  $350 = 2 \cdot 5^2 \cdot 7$

Handwritten work for 350:  
 $350 \xrightarrow{10} 35 \xrightarrow{5} 7$   
 $(2) \hat{5} (7) \hat{5}$   
 $2 \cdot 5^2 \cdot 7$

8)  $4725 = 3^3 \cdot 5^2 \cdot 7$

Handwritten work for 4725:  
 $4725 \xrightarrow{5} 945 \xrightarrow{5} 189 \xrightarrow{3} 63 \xrightarrow{3} 21 \xrightarrow{3} 7$   
 $(5) \hat{5} (3) \hat{3} (3) \hat{3} (7)$

Find the least common multiple (LCM) of the list of numbers.

9) 21, 24 LCM 168

$2^3 \cdot 7^1 \cdot 3^1 = 168$

Handwritten work for LCM:  
 $21 \xrightarrow{3} 7$   
 $24 \xrightarrow{2} 12 \xrightarrow{2} 6 \xrightarrow{2} 3$   
 $3^1 \cdot 7^1$   
 $(2) \hat{2} (3) \hat{2} \hat{2} \hat{2} \hat{3}$   
 $2^3 \cdot 3^1$

Handwritten notes:  
 -> Prime factors  
 -> List unique bases  
 -> highest exponent of each unique base  
 -> multiply

Write the fraction as an equivalent fraction with the given denominator.

10)  $\frac{3}{8} = \frac{15}{40}$

11)  $\frac{2}{3} = \frac{20}{30}$

Perform the indicated operation. Simplify your answers.

12)  $\frac{1}{9} + \frac{5}{9} = \frac{6}{9} = \frac{2}{3}$

13)  $\frac{3}{21} - \frac{2}{21} = \frac{1}{21}$

14)  $-\frac{4}{29} + \frac{8}{29} = \frac{-12}{29}$

15)  $-\frac{1}{2} \cdot \frac{7}{8} = \frac{-7}{16}$

$$16) \quad -\frac{6}{7} \cdot -\frac{2}{5} = +\frac{12}{35}$$

$$17) \quad \frac{3}{5} \cdot \frac{1}{6} \cdot \frac{1}{6} = \frac{1}{60}$$

$$18) \quad 6\frac{3}{7} \cdot 3\frac{8}{9} = \frac{45}{7} \cdot \frac{35}{9} = 25$$

change mixed to improper  
then multiply

$$19) \quad \frac{16}{7} \div \frac{4}{7} = \frac{16}{7} \cdot \frac{7}{4} = \frac{4}{1} = 4$$

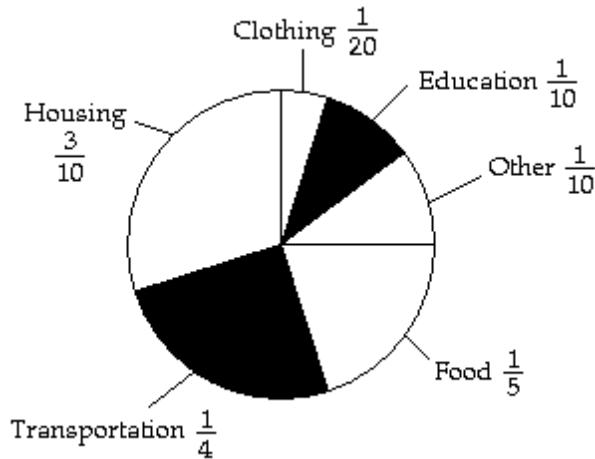
multiply by the  
reciprocal

$$20) \quad 50 \div \frac{10}{3} = 50 \cdot \frac{3}{10} = \frac{150}{1} = 150$$

$$21) \quad 4\frac{4}{7} \div \frac{1}{7} = \frac{32}{7} \cdot \frac{7}{1} = \frac{32}{1} = 32$$

$$22) \quad -\frac{7}{15} \div -\frac{1}{2} = -\frac{7}{15} \cdot -\frac{2}{1} = \frac{14}{15}$$

The circle graph below shows us how an average consumer spends money. Use this information to answer the question.



23) What fraction of spending goes for clothing and food combined?

$$\frac{1}{20} + \frac{1}{5} = \frac{1}{20} + \frac{4}{20} = \frac{5}{20} = \frac{1}{4} \text{ of money}$$

24) What fraction of spending goes for education, transportation, and other?

$$\frac{1}{4} + \frac{1}{10} + \frac{1}{10} = \frac{5}{20} + \frac{2}{20} + \frac{2}{20} = \frac{9}{20} \text{ of money}$$

25) Suppose your family spent \$69,000 on the items in the graph above. How much might we expect was spent on education?

$$\frac{1}{10} \cdot \frac{69000}{1} = \$6900 \text{ on education}$$

Perform the indicated operations. Round the result to the nearest thousandth if necessary.

26)  $34.13 + 98.05 + 15.626$

$$\begin{array}{r} 34.130 \\ 98.050 \\ 15.626 \\ \hline 147.806 \end{array}$$

27)  $-2.9 - 10.3$

change to adding opposite

$$\begin{array}{r} 10.3 \\ -2.9 \\ \hline 13.2 \end{array}$$

28)  $4.3 + 4.8$

$$\begin{array}{r} 4.8 \\ -4.3 \\ \hline = -0.5 \end{array}$$

29)  $36.7 \times 1.6$

$$\begin{array}{r} 36.7 \\ \times 1.6 \\ \hline 2202 \\ 3670 \\ \hline 58.72 \end{array}$$

Remember to line up the decimals to add or subtract

The total number of decimal places in the answer equal the total number in the answer.

30)  $(-1.4) \div (-2.52)$   
 $= .55$

$$\begin{array}{r} 2.52 \overline{) 1.260} \\ \underline{1260} \\ 0 \end{array}$$

31) Subtract 0.0114 from 87  
 $= 86.9886$

$$\begin{array}{r} 699910 \\ 87.0000 \\ - .0114 \\ \hline 86.9886 \end{array}$$

decimal is on the right of an integer

**Solve.**

32) One week in April in the town of Clearfield, it rained 0.87 inches on Monday, 1.46 inches on Thursday, and 0.83 inches on Saturday. It didn't rain the other four days. What was the total rainfall for the week?

$$\begin{array}{r} 2.87 \\ 1.46 \\ .83 \\ \hline 3.16 \text{ in} \end{array}$$

Total so add

33) In a practice run, a race car driver's speed is clocked at 145.047 mph at the end of his first lap, and at 162.996 mph at the end of the next lap. How much faster was he driving at the end of the second lap?

$$\begin{array}{r} 162.996 \\ - 145.047 \\ \hline 17.949 \text{ mph} \end{array}$$

How much faster looks @ the difference