Lesson 90

Construct Meaning

Frontal Lobe

Parietal Lobe

Occipital Lobe

Temporal Lobe
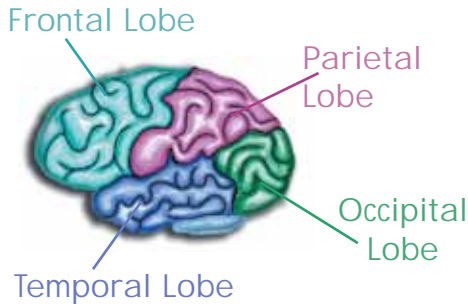
The human brain is divided into four lobes. The lobes are separated by the various grooves and bumps on the surface of the brain. Each lobe performs a different function. The lobes are called the frontal lobe, occipital lobe, parietal lobe, and temporal lobe.

The parietal lobe may be divided into four equal sections. If the total surface area is $28\frac{1}{3}$ square inches, what is the surface area of each section?

$28\frac{1}{3} \div 4$

$\frac{85}{3} \div \frac{4}{1}$ Rename the mixed number as an improper fraction.

Rename the whole number as a fraction.
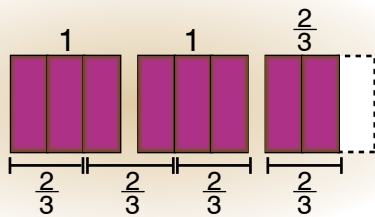
Use the shortcut:

$\frac{85}{3} \times \frac{1}{4}$ Multiply by the reciprocal.

$\frac{85}{12} = 7\frac{1}{12}$ Rename the improper fraction as a mixed number.

Each section is $7\frac{1}{12}$ square inches.

Solve $2\frac{2}{3} \div \frac{2}{3}$.

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

$\frac{2}{3} \quad \frac{2}{3} \quad \frac{2}{3} \quad \frac{2}{3}$

Rename the mixed number as an improper fraction. $\frac{8}{3} \div \frac{2}{3}$

Multiply by the reciprocal. Cross-cancel. $\frac{\overset{4}{\cancel{8}}}{\cancel{3}} \times \frac{\cancel{3}}{\underset{1}{\cancel{2}}}$

Rename the improper fraction. $\frac{4}{1} \times \frac{1}{1} = \frac{4}{1} = 4$

Solve $2\frac{2}{9} \div 2\frac{2}{3}$.

Rename the mixed numbers. $\frac{20}{9} \div \frac{8}{3}$

Multiply by the reciprocal. $\frac{20}{9} \times \frac{3}{8}$

Cross-cancel. Multiply. $\frac{\overset{5}{\cancel{20}}}{\underset{3}{\cancel{9}}} \times \frac{\overset{1}{\cancel{3}}}{\underset{2}{\cancel{8}}} = \frac{5}{3} \times \frac{1}{2} = \frac{5}{6}$

> **Estimating Quotients**
>
> Round each mixed number to the nearest whole number to estimate the quotient.
>
> $6\frac{1}{9} \div 2\frac{3}{4}$ Round, then divide.
>
> $6 \div 3 = 2$
>
> $5\frac{2}{3} \div 1\frac{1}{5}$ Round, then divide.
>
> $6 \div 1 = 6$

Check Understanding

Solve.

a. $\frac{6}{7} \div 1\frac{5}{7}$

b. $3\frac{1}{8} \div \frac{5}{6}$

c. $6\frac{2}{5} \div \frac{8}{15}$

d. $2\frac{1}{9} \div 2\frac{2}{9}$

Estimate.

e. $1\frac{3}{4} \div 1\frac{1}{6}$ **f.** $8\frac{2}{9} \div 4\frac{1}{4}$ **g.** $9\frac{1}{3} \div 3\frac{1}{4}$ **h.** $1\frac{7}{8} \div 1\frac{2}{9}$

Practice

Write each mixed number as an improper fraction. Then write its reciprocal.

1. $4\frac{1}{2}$ **2.** $1\frac{5}{8}$ **3.** $7\frac{1}{7}$ **4.** $3\frac{4}{9}$ **5.** $8\frac{2}{3}$ **6.** $6\frac{1}{9}$

Estimate the quotient.

7. $4\frac{1}{3} \div 2\frac{1}{5}$ **8.** $9\frac{3}{5} \div 2\frac{2}{9}$ **9.** $5\frac{6}{7} \div 3\frac{1}{8}$ **10.** $15\frac{3}{8} \div 5\frac{3}{8}$

11. $13\frac{1}{4} \div 1\frac{2}{9}$ **12.** $23\frac{3}{5} \div 5\frac{7}{8}$ **13.** $8\frac{2}{31} \div 4\frac{3}{43}$ **14.** $17\frac{18}{25} \div 2\frac{3}{4}$

Find the quotient.

15. $4\frac{1}{2} \div 12$ **16.** $7\frac{4}{5} \div \frac{3}{5}$ **17.** $4\frac{3}{8} \div 3\frac{1}{2}$ **18.** $5 \div 1\frac{1}{7}$

19. $8\frac{1}{3} \div \frac{5}{9}$ **20.** $\frac{5}{7} \div 1\frac{2}{3}$ **21.** $\frac{2}{5} \div 3\frac{3}{5}$ **22.** $5\frac{1}{4} \div 8\frac{1}{6}$

Apply

23. Baby Jessica's weight at one year was about $2\frac{1}{2}$ times her weight at birth. At one-year of age she weighed $22\frac{1}{2}$ pounds. What was her weight at birth?

24. During a 30-minute television program there are about $5\frac{1}{3}$ minutes of advertising. If each commercial is an average of $\frac{2}{3}$ minutes long, how many commercials can be shown?

25. Elizabeth filled the bird feeder from a $10\frac{1}{2}$-pound bag. Every day she fed the birds with $\frac{1}{5}$-pound. How many days was she able to feed the birds from the $10\frac{1}{2}$-pound bag?

26. Lisel is covering the bathroom shelves in her house. She has $11\frac{1}{4}$ feet of shelving paper. How many shelves can she cover if each shelf is $1\frac{1}{2}$ feet long?

Review

1. $1\frac{1}{2} + 2\frac{1}{4}$ **2.** $3\frac{2}{9} + 1\frac{1}{9}$ **3.** $8\frac{1}{4} + 2\frac{1}{8}$ **4.** $6\frac{7}{8} + 4\frac{1}{8}$

5. $7\frac{5}{9} + 3\frac{4}{9}$ **6.** $2\frac{1}{5} + 3\frac{3}{4}$ **7.** $2\frac{7}{8} + 2\frac{1}{8}$ **8.** $3\frac{9}{10} + 4\frac{1}{5}$