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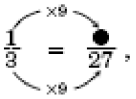
4-2 Simplifying Fractions - Practice and Problem Solving

Replace each ■ with a number so the fractions are equivalent.

11. $\frac{1}{3} = \frac{■}{27}$

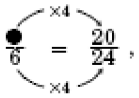
$\frac{1}{3} = \frac{□}{27}$



so $\frac{1}{3} = \frac{9}{27}$.

13. $\frac{■}{6} = \frac{20}{24}$

$\frac{□}{6} = \frac{20}{24}$



so $\frac{5}{6} = \frac{20}{24}$.

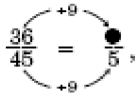
15. $\frac{12}{16} = \frac{3}{■}$

$\frac{12}{16} = \frac{3}{□}$

so $\frac{12}{16} = \frac{3}{4}$.

17. $\frac{36}{45} = \frac{■}{5}$

$\frac{36}{45} = \frac{□}{5}$



so $\frac{36}{45} = \frac{4}{5}$.

Write each fraction in simplest form. If the fraction is already in simplest form, write *simplest form.*

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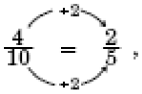
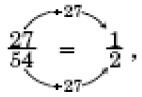
19. $\frac{4}{10}$



so $\frac{4}{10} = \frac{2}{5}$.

21. $\frac{27}{54}$

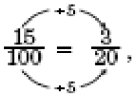


so $\frac{27}{54} = \frac{1}{2}$.

23. $\frac{32}{85}$

$\frac{32}{85}$ is in simplest form.

25. $\frac{15}{100}$

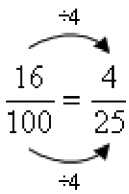


so $\frac{15}{100} = \frac{3}{20}$.

27. **MUSIC** In a typical symphony orchestra, 16 out of every 100 musicians are first and second violin players. Express the fraction of the orchestra that are violinist in simplest form.

Write $\frac{16}{100}$ in simplest form.

The GCF of 16 and 100 is 4.



So, $\frac{4}{25}$ of the orchestra are violinists.

Write two fractions that are equivalent to the given fraction.

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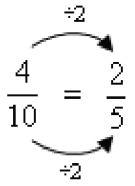
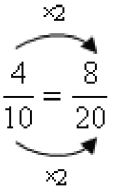
29. $\frac{4}{10}$

Sample answer:

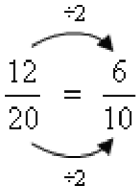


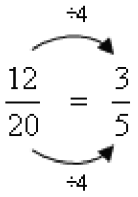


So, $\frac{2}{5}$ and $\frac{8}{20}$ are equivalent to $\frac{4}{10}$.

31. $\frac{12}{20}$

Sample answer:





So, $\frac{6}{10}$ and $\frac{3}{5}$ are equivalent to $\frac{12}{20}$.

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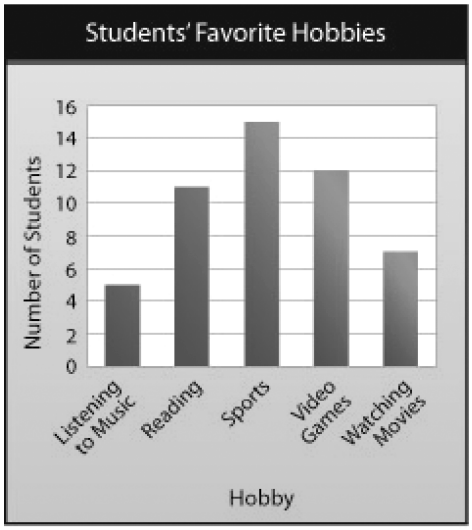
33. **ANALYZE GRAPHS** The results of a survey of students' favorite hobbies are shown in the bar graph at the right. In simplest form, what fraction of the students chose video games as their favorite hobby?



The total number of items is 5 + 11 + 15 + 12 + 7 or 50.

Write $\frac{12}{50}$ in simplest form.

The GCF of 12 and 50 is 2.

$$\frac{12}{50} \overset{\div 2}{=} \frac{6}{25}$$

So, $\frac{6}{25}$ of the students chose video games as their favorite hobby.

35. **Which One Doesn't Belong?** Identify the fraction that does not belong with the other three. Explain your reasoning.

$\frac{6}{15}$ $\frac{10}{25}$ $\frac{4}{20}$ $\frac{22}{55}$

$\frac{8}{12}$ $\frac{12}{18}$ $\frac{9}{12}$ $\frac{32}{48}$

The fraction $\frac{4}{20}$ does not belong, as it is not equivalent to $\frac{2}{5}$.

37. **WRITING IN MATH** Explain in your own words how to find a fraction that is equivalent to a given fraction.

Sample answer: Either multiply or divide the numerator and denominator by the same number.

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39. The fractions $\frac{2}{6}, \frac{3}{9}, \frac{4}{12}$, and $\frac{5}{15}$ are each equivalent to $\frac{1}{3}$. What is the relationship between the numerator and the denominator in each fraction that is equivalent to $\frac{1}{3}$?

F The numerator is three times the denominator.
G The numerator is three more than the denominator.
H The denominator is three times the numerator.
J The denominator is three more than the numerator.

The denominator is three times the numerator.
So, the correct answer is H.

Find the GCF of each set of numbers.

41. 45, 75

The GCF is 3×5 or 15.

43. **GASOLINE** Benita spent $38.40 at the gas station to fill up her car's gas tank. If she pumped 15 gallons of gasoline into her car, is about $2, $2.50, or $3 a more reasonable answer for the cost of each gallon of gasoline?

$$
\begin{array}{r}
2.56 \\
15\overline{)38.40} \\
-30 \\
\hline
84 \\
-75 \\
\hline
90 \\
-90
\end{array}
$$

$\$2.56 - \$2.00 = \$.56$
$\$2.56 - \$2.50 = \$.06$
$\$3.00 - \$2.56 = \$.44$
$2.50 is the closest amount to $2.56 so $2.50 is the correct answer.

Identify the solution of each equation from the list given.

45. $66 = z - 23$; 88, 89, 90

$66 = 89 - 23$ so $z = 89$

PREREQUISITE SKILL Divide. Include remainders in your answers.

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47. $19 \div 6$

$$
\begin{array}{r}
3\ \text{R}1 \\
6\overline{)19} \\
\underline{-18} \\
1
\end{array}
$$

49. $67 \div 9$

$$
\begin{array}{r}
7\ \text{R}4 \\
9\overline{)67} \\
\underline{-63} \\
4
\end{array}
$$