



TRANSLATING PHRASES Translate the verbal phrase into a product or quotient of rational expressions. Then find the product or quotient.

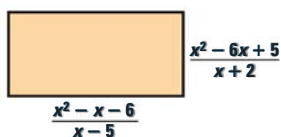
22. The product of $x + 3$ and the ratio of $x + 5$ to $x^2 - 9$
23. The product of $8x^2$ and the multiplicative inverse of $2x^3$
24. The quotient of $x^2 + 3x - 18$ and the ratio of $x + 6$ to 2
25. The quotient of the multiplicative inverse of $x^2 - 3x - 4$ and twice the multiplicative inverse of $x^2 - 1$
26.  **TAKS REASONING** What is the quotient $\frac{x^2 - 1}{-(x + 1)} \div (x - 1)$?
- (A) -1 (B) 0 (C) 1 (D) $x^2 - 1$

 **TAKS REASONING** Let a , b , c , and d be different polynomials. Find two rational expressions $\frac{a}{b}$ and $\frac{c}{d}$ that satisfy the given conditions.

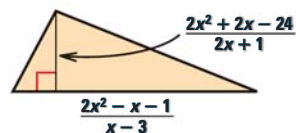
27. The product of the rational expressions is $\frac{x - 3}{x + 2}$, and the excluded values are -2 , -1 , 4 , and 5 .
28. The quotient of the rational expressions is $\frac{x - 6}{x + 4}$, and the excluded values are -4 , -2 , 3 , and 6 .

 **GEOMETRY** Write an expression for the area of the figure. Find a value of x less than 5 for which the given dimensions and the area are positive.

29. Rectangle



30. Triangle



CHALLENGE Let a be a polynomial in the given equation. Find a .

31. $\frac{a}{x + 2} \cdot \frac{3x^2 + 5x - 2}{x - 4} = 6x^2 + 7x - 3$
32. $\frac{8x^2 - 2x - 3}{x - 5} \div \frac{2x + 1}{a} = 12x^2 - x - 6$

PROBLEM SOLVING

EXAMPLE 6
on p. 805
for Exs. 33–35

33. **VEHICLES** The total distance M (in billions of miles) traveled by all motor vehicles and the distance T (in billions of miles) traveled by trucks in the United States during the period 1980–2002 can be modeled by

$$M = 1500 + 63x \quad \text{and} \quad T = \frac{100 + 2.2x}{1 - 0.014x}$$

where x is the number of years since 1980. Write a model that gives the percent p (in decimal form) of the total motor vehicle distance that was traveled by trucks as a function of x . Then approximate the percent traveled by trucks in 2002.

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