Algebra 2 Bellwork Tuesday, January 19, 2016

1. Suppose that T varies directly with S and inversely with the square of R.

a. How is the value of T changed when the value of S is doubled?

b. How is the value of T changed when the value of R is doubled?

2. Simplify this rational expression. State restrictions on the variable. $\dfrac{8x^5 - 72x^3}{10x^3 - 20x^2 - 150x}$

3. Simplify each.

a) $\dfrac{16}{27} \cdot \dfrac{-45}{36}$ b) $\dfrac{18}{21} \div \dfrac{24}{35}$ c) $\dfrac{\frac{4}{x}}{x+2}$

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ANSWERS

1. Suppose that T varies directly with S and inversely with the square of R.

a. How is the value of T changed when the value of S is doubled?

$T = \dfrac{kS}{R^2}$

if S is doubled the T is doubled

b. How is the value of T changed when the value of R is doubled?

if R is doubled then T is one-fourth as large

2. Simplify this rational expression. State restrictions on the variable. $\dfrac{8x^5 - 72x^3}{10x^3 - 20x^2 - 150x}$

$\dfrac{8x^3(x+3)(x-3)}{10x(x-5)(x+3)} = \dfrac{4x^2(x-3)}{5(x-5)}$

$x \neq 0, -3, 5$

$8x^5 - 72x^3 = 8x^3(x^2-9)$
$= 8x^3(x+3)(x-3)$

$10x^3 - 20x^2 - 150x$
$= 10x(x^2 - 2x - 15)$
$= 10x(x-5)(x+3)$

3. Simplify each.

a) $\dfrac{16}{27} \cdot \dfrac{-45}{36}$ ($\div 9$)

$\dfrac{16}{27} \cdot \dfrac{-5}{4}$ ($\div 4$)

$\dfrac{4}{27} \cdot \dfrac{-5}{1} = \dfrac{-20}{27}$

b) $\dfrac{18}{21} \div \dfrac{24}{35}$

$\dfrac{18}{21} \cdot \dfrac{35}{24}$ ($\div 6$, $\div 7$)

$\dfrac{3}{1} \cdot \dfrac{5}{4} = \dfrac{5}{4}$

c) $\dfrac{\frac{4}{x}}{x+2} \cdot \dfrac{x}{x}$

$= \dfrac{4}{x(x+2)}$