

Math 1303 - Math in the Liberal Arts

Homework #5 - 2005.10.18

Due Date - 2005.10.26

Solutions

Determine if the following equations are generally true or not. If they are NOT true, find values (if possible) for the unknown variables which will make the equation true.

$$1. \quad \frac{a}{b} \frac{a}{c} = \frac{a}{b \cdot c}$$

False Statement, but will work for any b and c if $a = 1$.

$$2. \quad \frac{a}{b} + \frac{c}{d} = \frac{a \cdot d + b \cdot c}{b \cdot d}$$

True Statement.

$$3. \quad 1 + \frac{a}{b} = \frac{a + b}{b}$$

True Statement.

$$4. \quad 1 + \frac{a}{b} = \frac{a}{a + b}$$

False Statement, no values of a and b will make this statement true.

$$5. \quad a \cdot (b + c) - b = a \cdot c$$

False Statement, but will work for any value of c if $b = 0$ or $a = 1$.

$$6. \quad \frac{a + b}{a - b} = 1 + \frac{2b}{a - b}$$

True Statement.

$$7. \quad a + \frac{1}{\frac{1}{a}} = 2a$$

True Statement.

$$8. \quad \frac{a}{a + b} = \frac{1}{b}$$

False Statement, but will work if $a = \frac{b}{b-1}$, with the restriction that $b \neq 0$ or $b \neq -a$.

$$9. \quad \frac{c \cdot a}{c \cdot a + b} = \frac{a}{a + b}$$

False Statement, but will work for any values of a and b if $c = 1$.

$$10. \quad (a + b)^2 = a^2 + b^2$$

False Statement, notice that if one of the variables is set to zero, then the equation is true.