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| --- | --- | --- | --- | --- |
| Reflexive Property | For all real numbers  A number equals itself | | | These three Properties define an equivalence relation |
| Reflexive Property | For all real numbers ,  If  Order of equality does not matter | | |
| Transitive Property | For all real numbers ,  If  If and y=z then x=z  Two numbers equal to the same number are equal to each other | | |
| Addition Property | | For all real numbers  If , then | These properties allow you to balance and solve equations involving real numbers  For more, see the section on the distributive property | | |
| Subtraction Property | | For all real numbers  If , then |
| Multiplication Property | | For all real numbers  If , then |
| Division Property | | For all real numbers  If , and , then |
| Substitution Property | | For all real numbers  If , then can be substituted for in any expression |
| Distributive Property | | For all real numbers |

Questions:

* 1. Solve the following equation for x

2x + 6 = 3x + 9

6 – 9 = 3x – 2x

x = –3

* 1. Solve the following equation for x

4(2x + 6) = 2(–4x – 10)

8x + 24 = –8x – 20

8x + 8x = –20 – 24

16x = –44

* 1. Solve the following equation for x

x + 4 = 6 × 10

x + 4 = 60

x = 60 – 4

x = 56

* 1. A restaurant charges $9.95 for a large pizza with two toppings, and $1.25 for each additional topping. John bought a pizza which cost him $13.7. Find the number of toppings.

9.95 + 1.25x = 13.7

1.25x = 13.7 – 9.95

1.25x = 3.75

x =

x = 3 toppings