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Properties of Real Numbers Assignment

Name the property of real numbers used in each equation. Then find the value of x.

1. $0.75 + 0 = x$
2. $0 = 2 + x$
3. $0.52 + 0.15 = 0.52 + x$
4. $(9 + 7) + 5 = 9 + (7 + x)$
5. $21x = 21$
6. $2x = 0$
7. $1 = 13x$
8. $x + 25 = 25 + 10$
9. $(8 \cdot 3) \cdot 9 = x \cdot (3 \cdot 9)$
10. $12 - 3 = x + 12$

Evaluate each expression if $x = 4$, $y = 3$ and $z = 6$. (Name the property used in each step.)

11. $\frac{3}{x}[x \div (7 - x)]$
12. $2(y \cdot 2 - 5) + y \cdot \frac{1}{y}$
13. $z \cdot \frac{1}{z} + 5(2z \div 4 - 3)$
14. $y\frac{y}{7} \cdot 14 \cdot 1\frac{1}{4}$
15. $\frac{1}{x} + 2 + 2\frac{3}{x}$
16. $2x + \frac{3}{5}\left(\frac{1}{2}x + 2y\right) + \frac{2}{y}$
17. $3.2(x + y) + 2.3(x + y) + 4x$
18. $\left(4x^2 + 6x\right) + \left(3y^2 + 8y\right)$

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Properties of Real Numbers Assignment

ANSWER

Name the property of real numbers used in each equation. Then find the value of x.

1.	$0.75 + 0 = x$	$x = 0.75$	Additive identity property
2.	$0 = 2 + x$	$x = -2$	Additive inverse property
3.	$0.52 + 0.15 = 0.52 + x$	$x = 0.15$	Commutative property of addition
4.	$(9 + 7) + 5 = 9 + (7 + x)$	$x = 5$	Associative property of addition
5.	$21x = 21$	$x = 1$	Multiplicative identity property
6.	$2x = 0$	$x = 0$	Multiplicative property of zero
7.	$1 = 13x$	$x = \frac{1}{13}$	Multiplicative inverse property
8.	$x + 25 = 25 + 10$	$x = 10$	Commutative property of addition
9.	$(8 \cdot 3) \cdot 9 = x \cdot (3 \cdot 9)$	$x = 8$	Associative property of multiplication
10.	$12 - 3 = x + 12$	$x = -3$	Commutative property of addition

Evaluate each expression if $x = 4$, $y = 3$ and $z = 6$. (Name the property used in each step.)

11. $\frac{3}{x}[x \div (7 - x)]$

$\frac{3}{4}[4 \div (7 - 4)]$	**Substitution**
$= \frac{3}{4}[4 \div 3] = \frac{3}{4} \cdot \frac{4}{3}$	**Subtraction (Grouping)**
$= 1$	**Multiplicative inverse**

12. $2(y \cdot 2 - 5) + y \cdot \frac{1}{y}$

$= 2(3 \cdot 2 - 5) + 3 \cdot \frac{1}{3}$	**Substitution**
$= 2(3 \cdot 2 - 5) + 1$	**Multiplicative inverse**
$= 2(6 - 5) + 1$	**Multiply**
$= 2(1) + 1$	**subtract**
$= 2 + 1$	**Multiplicative identity**
$= 3$	**Add**

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13. $z \cdot \frac{1}{z} + 5(2z \div 4 - 3)$

$= 6 \cdot \frac{1}{6} + 5(2(6) \div 4 - 3)$	**Substitution**
$= 1 + 5(2(6) \div 4 - 3)$	**Multiplicative inverse**
$= 1 + 5(12 \div 4 - 3)$	**Multiply**
$= 1 + 5(3 - 3)$	**Divide**
$= 1 + 5(0)$	**Subtract**
$= 1 + 0$	**Multiplicative property of zero**
$= 1$	**Addition identity**

14. $y\frac{y}{7} \cdot 14 \cdot 1\frac{1}{4}$

$= 3\frac{3}{7} \cdot 14 \cdot 1\frac{1}{4}$	**Substitution**
$= \frac{24}{7} \cdot 14 \cdot \frac{5}{4}$	**Improper fraction**
$= \frac{(4 \cdot 6)}{7} \cdot (2 \cdot 7) \cdot \frac{5}{4}$	**Symmetric**
$= \frac{(1 \cdot 6)}{1} \cdot (2 \cdot 1) \cdot \frac{5}{1}$	**Multiplicative inverse**
$= 6 \cdot 2 \cdot 5$	**Simplified**
$= 60$	**Multiply**

15. $\frac{1}{x} + 2 + 2\frac{3}{x}$

$= \frac{1}{4} + 2 + 2\frac{3}{4}$	**Substitution**
$= \frac{1}{4} + 2 + \frac{11}{4}$	**Improper fraction**
$= \frac{1}{4} + \frac{11}{4} + 2$	**Associative (addition)**
$= \frac{12}{4} + 2$	**Add**
$= 3 + 2$	**Divide**
$= 5$	**Add**

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Properties of Real Numbers Assignment

16. $2x+\frac{3}{5}\left(\frac{1}{2}x+2y\right)+\frac{2}{y}$

$=2(4)+\frac{3}{5}\left(\frac{1}{2}(4)+2(3)\right)+\frac{2}{3}$	**Substitution**
$=8+\frac{3}{5}(2+6)+\frac{2}{3}$	**Multiply and divide**
$=8+\frac{3}{5}(8)+\frac{2}{3}$	**Add**
$=8+\frac{24}{5}+\frac{2}{3}$	**Multiply**
$=\frac{120}{15}+\frac{72}{15}+\frac{10}{15}$	**LCD**
$=\frac{202}{15}$	**Add**

17. $3.2(x+y)+2.3(x+y)+4x$

$=3.2(4+3)+2.3(4+3)+4(4)$	**Substitution**
$=3.2(7)+2.3(7)+4(4)$	**Add**
$=22.4+16.1+16$	**Multiply**
$=54.5$	**Add**

18. $\left(4x^2+6x\right)+\left(3y^2+8y\right)$

$=\left(4(4)^2+6(4)\right)+\left(3(3)^2+8(3)\right)$	**Substitution**
$=(4(16)+24)+(3(9)+24)$	**Multiply**
$=(64+24)+(27+24)$	**Multiply**
$=88+51$	**Add**
$=139$	**Add**