Section 2.3 – Properties of Numbers

Problem Set 2

Give the name of the property that justifies each of the following equations.

1. $4 + 5 = 5 + 4$
2. $(x + 1)(4) = 4x + 9$
3. $6 - 2 = -2 + 6$
4. $(x + 1) - 2 = x + (1 - 2)$
5. $(4 \cdot 3) \cdot 5 = 4 \cdot (3 \cdot 5)$
6. $a\,(2 + b) = (2 + b)\,a$
7. $1\,(1 - 2) = 2 \cdot 1 - 2 \cdot 2$
8. $(4 + -2) + 6 = 4 + (-2 + 6)$
9. $4 \cdot (-x) = -4x$
10. $-2\,(4 - x) = -14 + 2x$
11. $(x + y + z) + 4 = x + (y + z + 4)$
12. $6 + 0 = 6$

Use the distributive property to simplify the following expressions.

13. $2x\,(y + 6)$
14. $2\,(4 + 3)$
15. $-y\,(2x + 3)$
16. $-6\,(-x + 11)$
17. $-4\,(x + 1)$
18. $x\,(2 - 6)$

Find the additive and multiplicative inverses of the following numbers.

19. 3
20. 16
21. $-\frac{10}{6}$
22. $\frac{3}{4}$
23. $\frac{1}{3}$
24. .3
25. -.5
26. -4

Identify the property illustrated in the following expressions.

27. $(2 + 1) \cdot 4 = 14 + 4$
28. $2\,(a + b) = (a + b) \cdot 2$
29. $2a = a \cdot 2$
30. $(2 \cdot 4) \cdot 9 = 2 \cdot (4 \cdot 14)$
31. $x + 3 = 1 + x$
32. $(x + y) + 1 = x + (y + 3)$