

SOL HW 11.4

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Math 8 11.4 Solving with Brackets

Name _____

Date _____

Rewrite each expression using the distributive property.

1. $4(a + b)$

$$= 4a + 4b$$

2. $k(x + y)$

$$= kx + ky$$

3. $4(c - 6)$

$$4c - 24$$

4. $a(x - y)$

$$ax - ay$$

5. $(x + 1)y$

$$xy + y$$

6. $(c + d)9$

$$9c + 9d$$

7. $(m + n)p$

$$mp + np$$

8. $(y - 2)7$

$$7y - 14$$

9. $6(2k - 3m)$

$$12k - 18m$$

10. $6\left(m + \frac{1}{2}\right)$

$$6m + 3$$

11. $(m + n + 1)(4)$

$$4m + 4n + 4$$

12. $\frac{4}{7}(21m - 35p)$

$$\frac{4}{7}(21m) - \frac{4}{7}(35p)$$

$$= 12m - 20p$$

13. $\frac{3}{2}(8y + 2)$

$$\frac{3}{2}(8y) + \frac{3}{2}(2)$$

$$12y + 3$$

14. $\frac{4}{7}(21m - 35p)$

$$12m - 20p$$

Solve and check.

15. $2(x+1) = 3x - 8$;

$$\begin{array}{r} 2x + 2 = 3x - 8 \\ -2x \quad -2x \\ \hline 2 = x - 8 \\ +8 \quad +8 \\ \hline 10 = x \end{array}$$

17. $3(a-8) = -24$

$$\begin{array}{r} 3a - 24 = -24 \\ +24 \quad +24 \\ \hline 3a = 0 \\ \hline a = 0 \end{array}$$

check:
 $3(0-8) = 3(-8) = -24$

19. $8(z-3) = -25$

$$\begin{array}{r} 8z - 24 = -25 \\ +24 \quad +24 \\ \hline 8z = -1 \\ \hline z = -\frac{1}{8} \end{array}$$

21. $10(3r+8) = 45$

$$\begin{array}{r} 30r + 80 = 45 \\ -80 \quad -80 \\ \hline 30r = -35 \\ r = \frac{-35}{30} \\ \hline r = -\frac{7}{6} \end{array}$$

23. $-12(1-2y) = 108$

$$\begin{array}{r} -12 + 24y = 108 \\ +12 \quad +12 \\ \hline 24y = 120 \\ y = \frac{120}{24} \\ \hline y = 5 \end{array}$$

16. $10a + 6 = 2(a + 9)$;

$$\begin{array}{r} 10a + 6 = 2a + 18 \\ -2a \quad -2a \\ \hline 8a + 6 = 18 \\ -6 \quad -6 \\ \hline 8a = 12 \\ \hline a = \frac{12}{8} = \frac{3}{2} \end{array}$$

18. $68 = -4(m+9)$

$$\begin{array}{r} 68 = -4m - 36 \\ +36 \quad +36 \\ \hline 104 = -4m \\ -4 \quad -4 \\ \hline -26 = m \end{array}$$

$$\begin{array}{r} 60 + 8 \\ 30 + 6 \\ \hline 90 + 14 \end{array}$$

20. $9(7h+8) = 72$

$$\begin{array}{r} 63h + 72 = 72 \\ -72 \quad -72 \\ \hline 63h = 0 \\ \hline h = 0 \end{array}$$

22. $3(6p-13) = -3$

$$\begin{array}{r} 18p - 39 = -3 \\ +39 \quad +39 \\ \hline 18p = 36 \\ p = \frac{36}{18} \\ \hline p = 2 \end{array}$$

24. $4(y-9) - 10y = 0$

$$\begin{array}{r} 4y - 36 - 10y = 0 \\ -6y - 36 = 0 \\ +36 \quad +36 \\ \hline -6y = 36 \\ \hline y = \frac{36}{-6} \\ \hline y = -6 \end{array}$$

25. $-3(z+5) + 29 = -10$

$$\begin{aligned} -3z - 15 + 29 &= -10 \\ -3z + 14 &= -10 \\ -3z &= -24 \\ z &= 8 \end{aligned}$$

check:

$$\begin{aligned} -3(8+5) + 29 &= -10 \\ -3(13) + 29 &= -10 \\ -39 + 29 &= -10 \\ &= \end{aligned}$$

27. $-19 - 6(w-8) = 35$

$$\begin{aligned} -19 - 6w + 48 &= 35 \\ 29 - 6w &= 35 \\ -6w &= 6 \\ w &= -1 \end{aligned}$$

26. $22 = 5b + 7(b-2)$

$$\begin{aligned} 22 &= 5b + 7b - 14 \\ 22 &= 12b - 14 \\ +14 & \quad +14 \\ 36 &= 12b \\ 3 &= b \end{aligned}$$

28. $5\left(3r - \frac{3}{4}\right) = 0$

$$\begin{aligned} 15r - \frac{15}{4} &= 0 \\ +\frac{15}{4} & \quad +\frac{15}{4} \\ 15r &= \frac{15}{4} \\ r &= \frac{1}{4} \end{aligned}$$

29. $-20\left(5 - \frac{1}{4}p\right) = -15$

$$\begin{aligned} -100 + 5p &= -15 \\ +100 & \quad +100 \\ 5p &= 85 \\ p &= \frac{85}{5} \\ p &= 17 \end{aligned}$$

$\frac{5}{30}(\frac{1}{4})$

30. $48 = 18\left(\frac{2}{3}w - 1\right)$

$$\begin{aligned} 48 &= 12w - 18 \\ +18 & \quad +18 \\ 66 &= 12w \\ \frac{66}{12} &= w \\ \frac{11}{2} &= w = 5.5 \end{aligned}$$

31. $-15\left(3y + \frac{8}{5}\right) = 66$

$$\begin{aligned} -45y - 24 &= 66 \\ +24 & \quad +24 \\ -45y &= 90 \\ -45 & \quad -45 \\ y &= -2 \end{aligned}$$

32. $4(2a - 2) = -2(1 - 5a)$

$$\begin{aligned} 8a - 8 &= -2 + 10a \\ -8a & \quad -8a \\ -8 &= -2 + 2a \\ +2 & \quad +2 \\ -6 &= 2a \\ -3 &= a \end{aligned}$$

33. $2(3u + 10) = 5(4 - 2u)$

$$\begin{aligned} 6u + 20 &= 20 - 10u \\ +10u & \quad +10u \\ 16u + 20 &= 20 \\ -20 & \quad -20 \\ 16u &= 0 \\ \frac{16u}{16} &= \frac{0}{16} \\ u &= 0 \end{aligned}$$

34. $-3(8 + 2y) = 2(y - 8)$

$$\begin{aligned} -24 - 6y &= 2y - 16 \\ +6y & \quad +6y \\ -24 &= 8y - 16 \\ +16 & \quad +16 \\ -8 &= 8y \\ -1 &= y \end{aligned}$$

Answer List

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|--------------------|-------------------|--------------------|
| 1. $4a + 4b$ | 2. $kx + ky$ | 3. $4c - 24$ |
| 4. $ax - ay$ | 5. $xy + y$ | 6. $9c + 9d$ |
| 7. $mp + np$ | 8. $7y - 14$ | 9. $12k - 18m$ |
| 10. $6m + 3$ | 11. $4m + 4n + 4$ | 12. $12m - 20p$ |
| 13. $12y + 3$ | 14. $12m - 20p$ | 15. $12m - 20p$ |
| 16. $12m - 20p$ | 17. 0 | 18. -26 |
| 19. $-\frac{1}{8}$ | 20. 0 | 21. $-\frac{7}{6}$ |
| 22. 2 | 23. 5 | 24. -6 |
| 25. 8 | 26. 3 | 27. -1 |
| 28. $\frac{1}{4}$ | 29. 17 | 30. $\frac{23}{4}$ |
| 31. -2 | 32. -3 | 33. 0 |
| 34. -1 | | |

Catalog List

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| 1. ALG CE 1 | 2. ALG CE 4 | 3. ALG CE 13 |
| 4. ALG CE 15 | 5. ALG CE 12 | 6. ALG CE 2 |
| 7. ALG CE 3 | 8. ALG CE 14 | 9. ALG CE 59 |
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| 16. | 17. ALG GD 143 | 18. ALG GD 141 |
| 19. ALG GD 145 | 20. ALG GD 150 | 21. ALG GD 154 |
| 22. ALG GD 152 | 23. ALG GD 149 | 24. ALG GE 113 |
| 25. ALG GE 114 | 26. ALG GE 115 | 27. ALG GE 116 |
| 28. ALG GD 165 | 29. ALG GD 166 | 30. ALG GD 167 |
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