Solving equations involving brackets.

Example 1

Solve: $3(y+4) = 21$

Remove the brackets.

$$3y + 12 = 21$$

Subtract 12 from both sides.

$$\begin{array}{rcl} 3y + 12 & = & 21 \\ -12 & - & 12 \\ \hline 3y & = & 9 \end{array}$$

Divide both sides by 3.

$$\begin{array}{rcl} \frac{3y}{3} & = & \frac{9}{3} \\ y & = & 3 \end{array}$$

Example 2

Solve: $5(y+1) - 3(y-1) = 14$

Remove the brackets.

$$5y + 5 - 3y + 3 = 14$$

Collect like terms.

$$\begin{array}{rcl} 5y - 3y + 5 + 3 & = & 14 \\ 2y + 8 & = & 14 \end{array}$$

Subtract 8 from both sides.

$$\begin{array}{rcl} 2y + 8 - 8 & = & 14 - 8 \\ 2y & = & 6 \end{array}$$

Divide both sides by 2.

$$\begin{array}{rcl} \frac{2y}{2} & = & \frac{6}{2} \\ y & = & 3 \end{array}$$

Exercise 14:33

Solve:

1. $2(x+2) = 10$
2. $3(y-1) = 21$
3. $4(p+3) = 20$
4. $2(q+4) = 24$
5. $5(x+1) = 15$
6. $6(x+3) = 30$
7. $7(x-3) = 7$
8. $5(2b-3) = 35$
9. $3(x-6) = 12$
10. $4(m-3) = 8$
11. $9(x-1) = 18$
12. $6(p-4) = 30$

Exercise 14:34

Solve:

1. $3(x-2) + 2(x-1) = 2$
2. $4(x+2) + 3(x-1) = 12$
3. $5(p+1) + 2(p+8) = 42$
4. $6(m-2) + 3(m+1) = 0$
5. $4(x-1) - 3(x-2) = 4$
6. $4(p-1) - 2(p-1) = 12$
7. $5(t-1) - 3(t-7) = 0$
8. $3(q-2) - 2(q-5) = 7$
9. $5(x-1) - 3(x-3) = 20$
10. $(p-2) + (p-4) = 0$
11. $6(m+1) - (m-2) = 13$
12. $7(n+3) - (2n-4) = 35$