

Use the properties of equality to complete each proof.

1 Given: $6x - 2y = 14$; Prove: $y = 3x - 7$

Statements	Reasons
1. $6x - 2y = 14$	1.
2. $-2y = -6x + 14$	2.
3. $y = 3x - 7$	3.

2 Given: $m = \frac{1}{2}(a + b)$; Prove: $b = 2m - a$

Statements	Reasons
1. $m = \frac{1}{2}(a + b)$	1.
2. $2m = a + b$	2.
3. $2m - a = b$	3.
4. $b = 2m - a$	4.

3 Given: $f + g = k + 7$, $k = f$; Prove: $g = 7$

Statements	Reasons
1. $f + g = k + 7$	1.
2. $k = f$	2.
3. $f + g = f + 7$	3.
4. $g = 7$	4.

4 Given: $p = 3q$, $p + q = r$, $r = 20$; Prove: $q = 5$

Statements	Reasons
1. $p = 3q$	1.
2. $p + q = r$	2.
3. $r = 20$	3.
4. $p + q = 20$	4.
5. $3q + q = 20$	5.
6. $4q = 20$	6.
7. $q = 5$	7.

5 Given: $2x + y = 4$, $x = y + 5$ Prove: $y = -2$

Statements	Reasons
1. $2x + y = 4$	1.
2. $x = y + 5$	2.
3. $2(y + 5) + y = 4$	3.
4. $2y + 10 + y = 4$	4.
5. $3y + 10 = 4$	5.
6. $3y = -6$	6.
7. $y = -2$	7.

6 Given: $-10x - 2y = 16$; Prove: $y = -5x - 8$

Statements	Reasons

7 Given: $F = \frac{9}{5}C + 32$; Prove: $C = \frac{5}{9}(F - 32)$

Statements	Reasons

8 Given: $x + y = z$, $w + v = z$, $w = y$; Prove: $x = v$

Statements	Reasons

9 Given: $p + q = 25$, $r + s = 25$, $q = r$; Prove: $p = s$

Statements	Reasons

10 Given: $2e + 10 = 16 - 2h$, $e = f - h$; Prove: $f = 3$

Statements	Reasons

11 Given: $a - 2b = 8$, $4a + 3b = 21$; Prove: $b = -1$

Statements	Reasons