1 Linear Functions

1. A function $f(x)$ is defined as $f(x) = x + 2$. Find:
   (a) $f(1) = 3$
   (b) $f(3) = 11$
   (c) $f(-1) = 1$
   (d) $f(-2) = 0$

2. A fucntion $f : x$ is defined as $f : x \to 2x + 3$. Find:
   (a) $f(2) = 7$
   (b) $f(5) = 13$
   (c) $f(-2) = -1$
   (d) $f(0) = 3$

3. If $f(x) = 5 - 3x$, find:
   (a) $f(3) = -4$
   (b) $f(-4) = 17$
   (c) $f(0) = 5$
   (d) $f(\frac{1}{3}) = 4$
   (e) $f(k) = 5 - 3k$

4. If $f(x) = 3x - 2$, find:
   (a) $f(3) = 7$
   (b) $f(4) + f(2) = 14$
   (c) $4 + f(2) = 8$
   (d) $f(\frac{1}{2}) = -\frac{1}{2}$
   (e) $f(3) - f(1) = 6$
   (f) $3 - f(1) = 2$

5. If $f(x) = 5 - 4x$, find:
   (a) $f(0) = 5$
   (b) $f(\frac{1}{2}) = 3$
   (c) $f(\frac{3}{4}) = 2$
   Find in terms of k;
   (d) $f(k) = 5 - 4k$
   (e) $f(3k) = 5 - 12k$
   (f) $3f(k) = 15 - 12k$
   (g) $f(k + 1) = 1 - 4k$
   (h) $f(k) + 1 = 6 - 4k$

6. If $f(x) = 2x + 4$, find:
   (a) $f(3) + f(5) = 24$
   (b) $f(3) + 5 = 15$
   (c) $3f(5) = 42$
   (d) $5f(3) = 50$
   Find in terms of k
   (e) $f(k) = 2k + 4$
   (f) $f(3k) = 6k + 4$
   (g) $f(k + 3) = 2k + 10$
   (h) $f(k) + 3 = 2k + 7$

7. If $f(x) = 2 - 3x$, find:
   (a) $f(\frac{2}{3}) = 0$
   (b) $f(-\frac{1}{3}) = 3$
   (c) $2f(3) = -14$
   (d) $\frac{1}{2}f(4) = -5$
   (e) $3f(2) - 2f(3) = 2$
   Find in terms of k;
   (f) $3f(k) = 6 - 9k$
   (g) $f(3k) + 3 = 5 - 9k$
   (h) $3f(k + 3) = -21 - 9k$

8. If $f(x) = 5x + 1$, find:
   (a) $f(\frac{2}{5}) = 3$
   (b) $2f(\frac{1}{5}) = 4$
   (c) $f(x - 2) = 5x - 9$
   (d) $f(x) - 2 = 5x - 1$
   (e) $-2f(x) = -10x - 2$
   (f) $f(x - 2) - f(-2) = 5x$
   (g) $-2f(x - 2) - 2 = -10x - 16$

9. If $f(x) = 3 - 4x$, Solve for x:
   (a) $x = 2$
   (b) $x = \frac{3}{5}$
   (c) $x = -1$
   (d) $x = -3$
   (e) $x = \frac{1}{2}$

10. If $f(x) = 3x + 2$, Solve for k:

(a) $k = 3$

(b) $k = -3$

(c) $k = 1$

(d) $k = -\frac{4}{3}$

11. If $f(x) = 1 - 2x$, Solve for x:

(a) $x = 1$

(b) $x = 1$

Find the value of k for which:

(c) $k = 3$

(d) $k = 5$

12. $f(x) = 3x$, and $g(x) = x + 4$
Find:

(a) $f(3) = 9$

(b) $g(2) = 6$

Find the value of x for which:

(c) $x = 2$

(d) $x = 4$

Find the value of k for which:

(e) $k = 3$

(f) $k = -3$

13. $f(x) = 2 - 3x$ and $g(x) = 2x + 7$
Find:

(a) $f(\frac{2}{3}) = 0$

(b) $g(\frac{1}{2}) = 6$

Find the value of x for which:

(c) $x = -1$

(d) $x = -4$

(e) $x = -\frac{1}{3}$

(f) $x = -6$

14. $f(x) = 2 - 3x$, and $g(x) = 2x + 7$
Find the value of k for which:

(a) $k = -2$

(b) $k = 5$