

Answers are on the back.

- Let h be the function which takes input x , multiplies the input by 10, then subtracts 15. Write the formula for h , and compute $h(6)$.
- Let convert be the function which converts angle measure in degrees to angle measure in radians. Write the formula for convert .
- Let f be the function defined by $f(x) = 2x - 3$. Compute each of the following quantities:
 - $f(1)$
 - $f(-3)$
 - $f(1 - 2)$
 - $f(1) - f(2)$
 - $f(1) + f(-2)$
 - $f(1) - 2$
 - $1 - f(2)$
 - $2f(4)$
 - $f(2)4$
 - $4f(2)$
 - $f(2 \cdot 4)$
 - $2f(3) - 5f(1)$
- Let g be the function defined by $g(x) = x^2 - x$. Compute each of the following quantities:
 - $g(3)$
 - $g(2 \cdot 3)$
 - $2g(3)$
 - $g(-2 + 4)$
 - $g(-2) + 4$
 - $g(-2 \cdot 5) - 20$
- Let dog be the function defined by the following procedure: if the input x is odd, then $\text{dog } x = x + 1$. If the input x is even, then $\text{dog } x = x - 1$. Compute each of the following quantities:
 - $\text{dog } 3$
 - $\text{dog } 4$
 - $\text{dog } (7 + 3)$
 - $\text{dog } 7 + 3$
 - $\text{dog } (7) + 3$
 - $3 + \text{dog } 7$
 - $\text{dog } 7 + \text{dog } 3$
 - $\text{dog } (7) + \text{dog } 3$
 - $\text{dog } (7) + \text{dog } (3)$
 - $7 + 3$
 - $\text{dog } 5 \cdot 3$
 - $\text{dog } (5 \cdot 3)$
 - $\text{dog } (5) \cdot 3$
 - $3 \text{ dog } 5$
 - $\text{dog } 4^2$
 - $\text{dog } (4)^2$
 - $\text{dog } (4^2)$
 - $(\text{dog } 4)^2$

Answers (I did these by hand; it is possible that they contain errors)

1. $h(x) = 10x - 15$; $h(6) = 45$.

2. convert $x = x \cdot \frac{\pi}{180^\circ}$.

3. (a) $f(1) = -1$

(b) $f(-3) = -9$

(c) $f(1 - 2) = f(-1) = -5$

(d) $f(1) - f(2) = -1 - 1 = -2$

(e) $f(1) + f(-2) = -1 + (-7) = -8$

(f) $f(1) - 2 = -1 - 2 = -3$

(g) $1 - f(2) = 1 - 1 = 0$

(h) $2f(4) = 2(5) = 10$

(i) $f(2)4 = 1 \cdot 4 = 4$

(j) $4f(2) = 4 \cdot 1 = 4$

(k) $f(2 \cdot 4) = f(8) = 13$

(l) $2f(3) - 5f(1) = 2(3) - 5(-1) = 11$

4. (a) $g(3) = 6$

(b) $g(2 \cdot 3) = g(6) = 30$

(c) $2g(3) = 2(6) = 12$

(d) $g(-2 + 4) = g(2) = 2$

(e) $g(-2) + 4 = 6 + 4 = 10$

(f) $g(-2 \cdot 5) - 20 = g(-10) - 20 = 110 - 20 = 90$

5. (a) $\text{dog } 3 = 4$

(b) $\text{dog } 4 = 3$

(c) $\text{dog } (7 + 3) = \text{dog } 10 = 9$

(d) $\text{dog } 7 + 3 = 8 + 3 = 11$

(e) $\text{dog } (7) + 3 = 8 + 3 = 11$

(f) $3 + \text{dog } 7 = 3 + 8 = 11$

(g) $\text{dog } 7 + \text{dog } 3 = 8 + 4 = 12$

(h) $\text{dog } (7) + \text{dog } 3 = 8 + 4 = 12$

(i) $\text{dog } (7) + \text{dog } (3) = 8 + 4 = 12$

(j) $7 + 3 = 10$

(k) $\text{dog } 5 \cdot 3 = \text{dog } 15 = 16$

(l) $\text{dog } (5 \cdot 3) = \text{dog } 15 = 16$

(m) $\text{dog } (5) \cdot 3 = 6 \cdot 3 = 18$

(n) $3 \text{ dog } 5 = 3 \cdot 6 = 18$

(o) $\text{dog } 4^2 = \text{dog } 4 \cdot 4 = \text{dog } 16 = 15$

(p) $\text{dog } (4)^2 = \text{dog } 16 = 15$

(q) $\text{dog } (4^2) = \text{dog } 16 = 15$

(r) $(\text{dog } 4)^2 = 3^2 = 9$