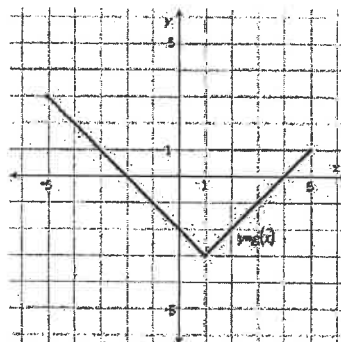
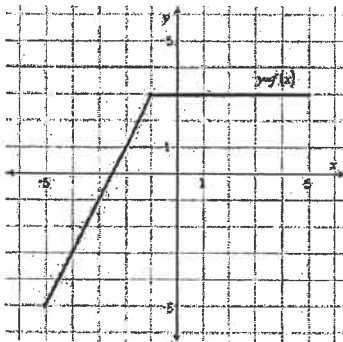


Exercises 1-10: Below are given values for functions  $f$ ,  $g$  and  $h$  and their first derivatives at selected values. For each exercise, find the specified derivative using this information.

|            |                |              |                 |             |             |
|------------|----------------|--------------|-----------------|-------------|-------------|
| $f(1) = 4$ | $f'(1) = -5.7$ | $g(1) = 3$   | $g'(1) = -0.6$  | $h(1) = 1$  | $h'(1) = 5$ |
| $f(2) = 3$ | $f'(2) = 0.7$  | $g(2) = 2$   | $g'(2) = -0.2$  | $h(2) = 4$  | $h'(2) = 6$ |
| $f(3) = 2$ | $f'(3) = -0.1$ | $g(3) = 2.6$ | $g'(3) = -0.63$ | $h(3) = 7$  | $h'(3) = 7$ |
| $f(4) = 5$ | $f'(4) = -7$   | $g(4) = 0.9$ | $g'(4) = -0.2$  | $h(4) = 12$ | $h'(4) = 8$ |
| $f(5) = 1$ | $f'(5) = 1$    | $g(5) = 1$   | $g'(5) = -0.81$ | $h(5) = 18$ | $h'(5) = 9$ |

- $K'(2); K(x) = 13.2 \cdot g(x)$
- $K'(4); K(x) = 6.8 + f(x)$
- $K'(2); K(x) = h(x)/3$
- $K'(2); K(x) = h(x^2)$
- $K'(9); K(x) = g(2x-15)$
- $K'(3); K(x) = f(x)g(x)$
- $K'(4); K(x) = h(x)/f(x)$
- $K'(2); K(x) = h((g(x))^2)$
- $K'(5); K(x) = h(x)f(x)g(x)$
- $K'(2); K(x) = g(f(h(x)))$

Exercises 11-16: Below are the graphs of function  $f$  and  $g$ . For each exercise, find the specified derivative using the information in the graphs.



- $K'(4); K(x) = f(x) + g(x)$
- $K'(2); K(x) = 4f(x) - 5g(x)$
- $K'(2); K(x) = f(x)/g(x)$
- $K'(-2); K(x) = g(x^2)$
- $K'(-4); K(x) = f(g(x))$
- $K'(3); K(x) = g(f(x))$

(Ostebee, Zorn, Calculus, p. 231)

17. Let  $h(x) = f(g(x))$  and  $j(x) = f(x) \cdot g(x)$ . Fill in the missing entries in the table.

| $x$ | $f(x)$ | $f'(x)$ | $g(x)$ | $g'(x)$ | $h(x)$ | $h'(x)$ | $j(x)$ | $j'(x)$ |
|-----|--------|---------|--------|---------|--------|---------|--------|---------|
| -1  | 3      | 2       | 1      |         | 0      | -1/2    | 3      |         |
| 0   | 0      | 1/2     | -1     | 1       |        |         | 0      | -1/2    |
| 1   |        | -5      | 0      |         |        | 2       | 0      |         |