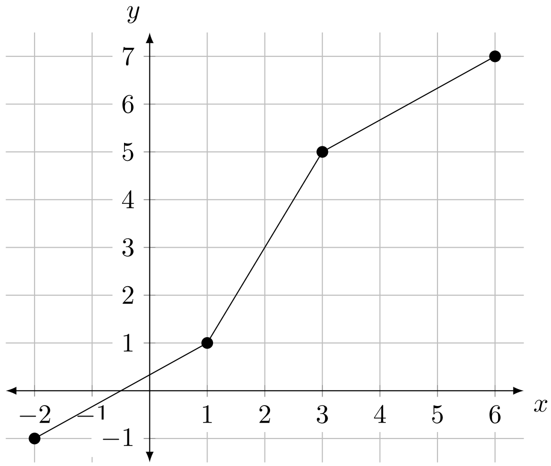
1. The differentiable function $f(x)$ has the following values and derivatives:

x	$-1/3$	$1/3$	3	5	$17/3$	$19/3$
$f(x)$	-10	-1	7	-5	-9	-4
$f'(x)$	-9	-5	3	-2	-10	6

The function $g(x)$ is shown below:



Graph of g

If $h(x) = f(g(x))$, find the equation of the tangent line to $h(x)$ at $x = 2$.

Solution: $h'(2) = f'(g(2))g'(2) = f'(3) \cdot (2) = (3) \cdot (2) = 6$

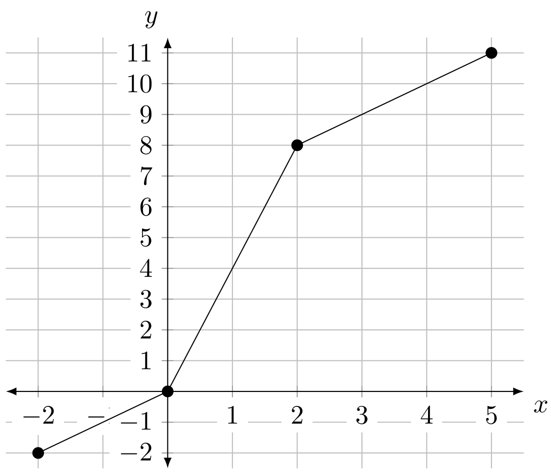
Then the equation of the tangent line is, by point-slope,

$$y - (7) = 6(x - 2)$$

2. The differentiable function $f(x)$ has the following values and derivatives:

x	-1	0	4	8	9	10
$f(x)$	-5	2	-4	6	1	9
$f'(x)$	-9	11	-2	7	3	5

The function $g(x)$ is shown below:



Graph of g

If $h(x) = f(g(x))$, find the equation of the tangent line to $h(x)$ at $x = 1$.

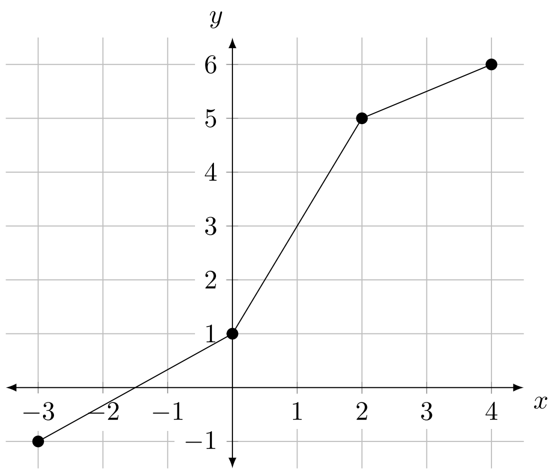
Solution: $h'(1) = f'(g(1))g'(1) = f'(4) \cdot (4) = (-2) \cdot (4) = -8$
Then the equation of the tangent line is, by point-slope,

$$y - (-4) = -8(x - 1)$$

3. The differentiable function $f(x)$ has the following values and derivatives:

x	$-1/3$	$1/3$	3	5	$11/2$	6
$f(x)$	3	2	-1	7	5	4
$f'(x)$	-3	8	-9	6	-2	-10

The function $g(x)$ is shown below:



Graph of g

If $h(x) = f(g(x))$, find the equation of the tangent line to $h(x)$ at $x = 1$.

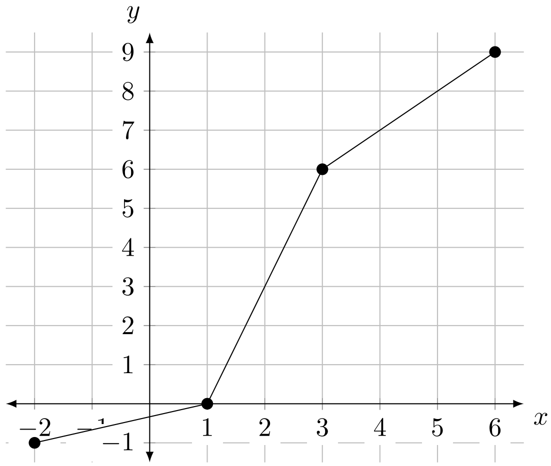
Solution: $h'(1) = f'(g(1))g'(1) = f'(3) \cdot (2) = (-9) \cdot (2) = -18$
Then the equation of the tangent line is, by point-slope,

$$y - (-1) = -18(x - 1)$$

4. The differentiable function $f(x)$ has the following values and derivatives:

x	$-2/3$	$-1/3$	3	6	7	8
$f(x)$	1	2	-9	-11	5	3
$f'(x)$	3	4	9	10	7	8

The function $g(x)$ is shown below:



Graph of g

If $h(x) = f(g(x))$, find the equation of the tangent line to $h(x)$ at $x = 2$.

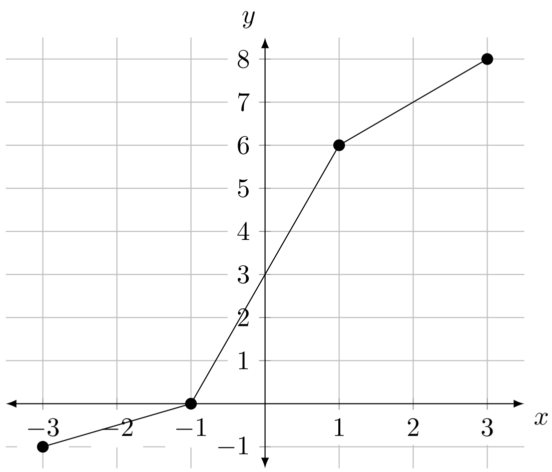
Solution: $h'(2) = f'(g(2))g'(2) = f'(3) \cdot (3) = (9) \cdot (3) = 27$
Then the equation of the tangent line is, by point-slope,

$$y - (-9) = 27(x - 2)$$

5. The differentiable function $f(x)$ has the following values and derivatives:

x	$-1/2$	0	3	6	7	8
$f(x)$	-11	7	-10	9	-8	-1
$f'(x)$	2	6	7	10	-11	-8

The function $g(x)$ is shown below:



Graph of g

If $h(x) = f(g(x))$, find the equation of the tangent line to $h(x)$ at $x = 0$.

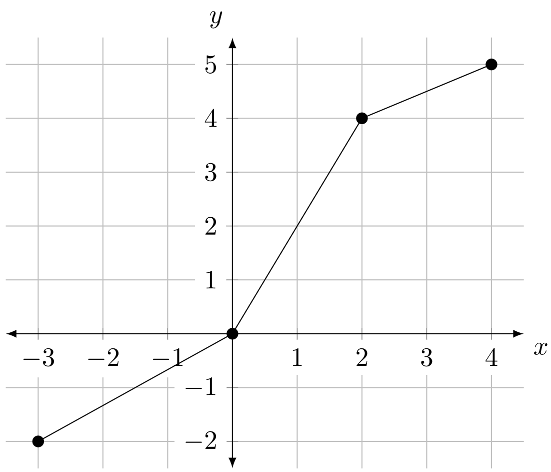
Solution: $h'(0) = f'(g(0))g'(0) = f'(3) \cdot (3) = (7) \cdot (3) = 21$
Then the equation of the tangent line is, by point-slope,

$$y - (-10) = 21(x - 0)$$

6. The differentiable function $f(x)$ has the following values and derivatives:

x	$-4/3$	$-2/3$	2	4	$9/2$	5
$f(x)$	-3	-5	-6	7	1	-11
$f'(x)$	3	7	-8	1	-5	4

The function $g(x)$ is shown below:



Graph of g

If $h(x) = f(g(x))$, find the equation of the tangent line to $h(x)$ at $x = 1$.

Solution: $h'(1) = f'(g(1))g'(1) = f'(2) \cdot (2) = (-8) \cdot (2) = -16$

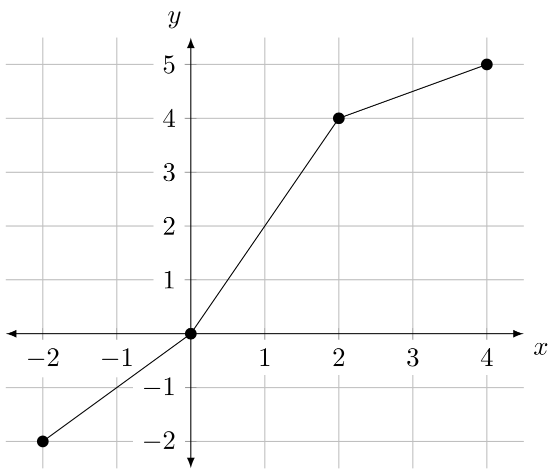
Then the equation of the tangent line is, by point-slope,

$$y - (-6) = -16(x - 1)$$

7. The differentiable function $f(x)$ has the following values and derivatives:

x	-1	0	2	4	$9/2$	5
$f(x)$	6	-10	-8	-7	9	4
$f'(x)$	10	6	-5	2	8	1

The function $g(x)$ is shown below:



Graph of g

If $h(x) = f(g(x))$, find the equation of the tangent line to $h(x)$ at $x = 1$.

Solution: $h'(1) = f'(g(1))g'(1) = f'(2) \cdot (2) = (-5) \cdot (2) = -10$

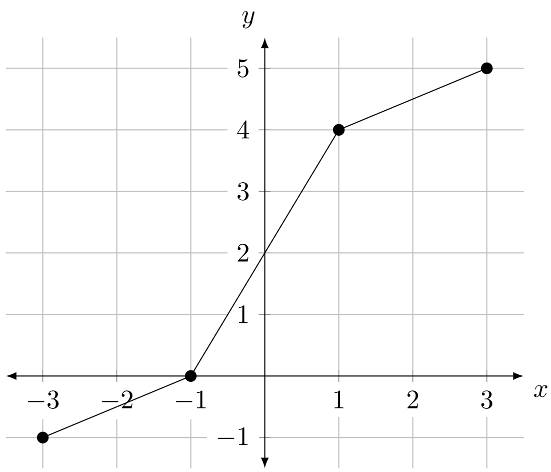
Then the equation of the tangent line is, by point-slope,

$$y - (-8) = -10(x - 1)$$

8. The differentiable function $f(x)$ has the following values and derivatives:

x	$-1/2$	0	2	4	$9/2$	5
$f(x)$	5	-9	4	2	10	-6
$f'(x)$	6	-10	-7	-5	-8	-3

The function $g(x)$ is shown below:



Graph of g

If $h(x) = f(g(x))$, find the equation of the tangent line to $h(x)$ at $x = 0$.

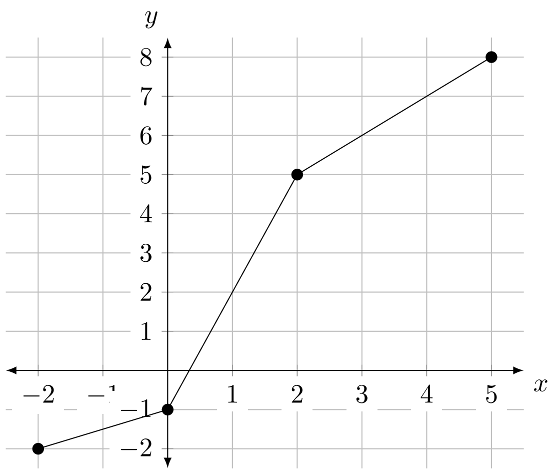
Solution: $h'(0) = f'(g(0))g'(0) = f'(2) \cdot (2) = (-7) \cdot (2) = -14$
Then the equation of the tangent line is, by point-slope,

$$y - (4) = -14(x - 0)$$

9. The differentiable function $f(x)$ has the following values and derivatives:

x	$-3/2$	-1	2	5	6	7
$f(x)$	1	10	-3	-4	9	5
$f'(x)$	3	11	8	-1	5	4

The function $g(x)$ is shown below:



Graph of g

If $h(x) = f(g(x))$, find the equation of the tangent line to $h(x)$ at $x = 1$.

Solution: $h'(1) = f'(g(1))g'(1) = f'(2) \cdot (3) = (8) \cdot (3) = 24$

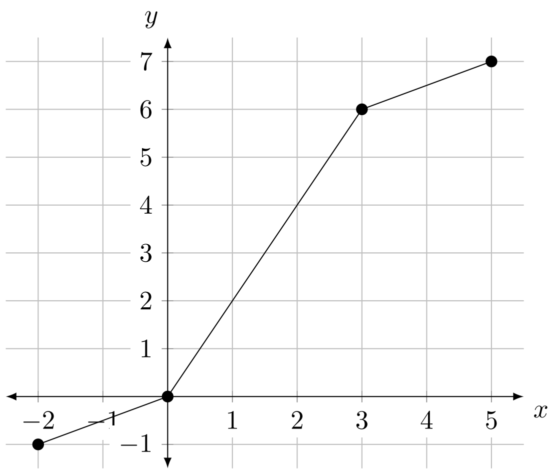
Then the equation of the tangent line is, by point-slope,

$$y - (-3) = 24(x - 1)$$

10. The differentiable function $f(x)$ has the following values and derivatives:

x	$-1/2$	0	2	4	$13/2$	7
$f(x)$	3	4	-7	5	2	8
$f'(x)$	-8	3	1	4	-7	-10

The function $g(x)$ is shown below:



Graph of g

If $h(x) = f(g(x))$, find the equation of the tangent line to $h(x)$ at $x = 1$.

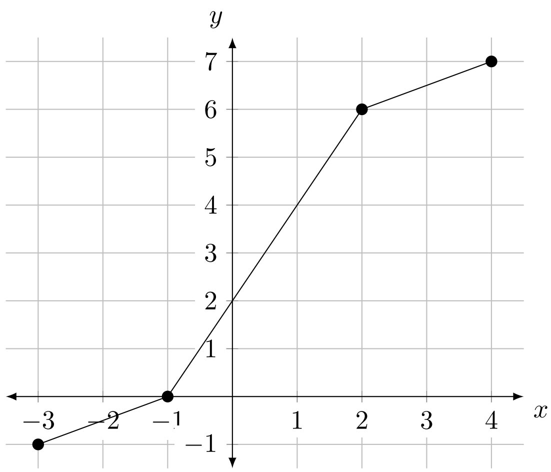
Solution: $h'(1) = f'(g(1))g'(1) = f'(2) \cdot (2) = (1) \cdot (2) = 2$
Then the equation of the tangent line is, by point-slope,

$$y - (-7) = 2(x - 1)$$

11. The differentiable function $f(x)$ has the following values and derivatives:

x	$-1/2$	0	2	4	$13/2$	7
$f(x)$	-4	-7	-10	-9	-1	-2
$f'(x)$	-11	-4	-3	-5	7	-9

The function $g(x)$ is shown below:



Graph of g

If $h(x) = f(g(x))$, find the equation of the tangent line to $h(x)$ at $x = 0$.

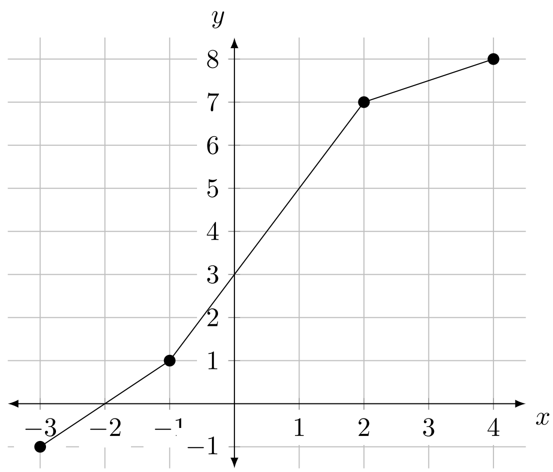
Solution: $h'(0) = f'(g(0))g'(0) = f'(2) \cdot (2) = (-3) \cdot (2) = -6$
Then the equation of the tangent line is, by point-slope,

$$y - (-10) = -6(x - 0)$$

12. The differentiable function $f(x)$ has the following values and derivatives:

x	0	1	3	5	15/2	8
$f(x)$	4	−11	7	8	−1	−10
$f'(x)$	−7	11	−3	−2	−8	−10

The function $g(x)$ is shown below:



Graph of g

If $h(x) = f(g(x))$, find the equation of the tangent line to $h(x)$ at $x = 0$.

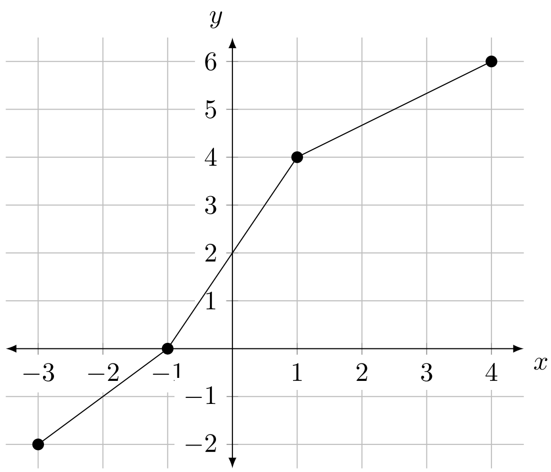
Solution: $h'(0) = f'(g(0))g'(0) = f'(3) \cdot (2) = (-3) \cdot (2) = -6$
Then the equation of the tangent line is, by point-slope,

$$y - (7) = -6(x - 0)$$

13. The differentiable function $f(x)$ has the following values and derivatives:

x	-1	0	2	4	$14/3$	$16/3$
$f(x)$	-6	-1	10	-4	9	-7
$f'(x)$	4	10	-11	2	-5	-8

The function $g(x)$ is shown below:



Graph of g

If $h(x) = f(g(x))$, find the equation of the tangent line to $h(x)$ at $x = 0$.

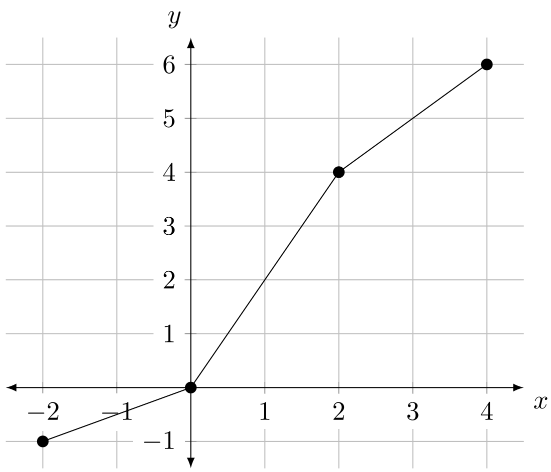
Solution: $h'(0) = f'(g(0))g'(0) = f'(2) \cdot (2) = (-11) \cdot (2) = -22$
Then the equation of the tangent line is, by point-slope,

$$y - (10) = -22(x - 0)$$

14. The differentiable function $f(x)$ has the following values and derivatives:

x	$-1/2$	0	2	4	5	6
$f(x)$	-9	7	-1	8	5	-10
$f'(x)$	10	-6	-2	-5	3	-11

The function $g(x)$ is shown below:



Graph of g

If $h(x) = f(g(x))$, find the equation of the tangent line to $h(x)$ at $x = 1$.

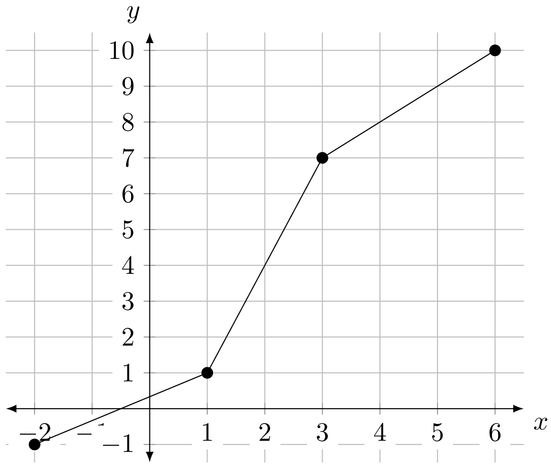
Solution: $h'(1) = f'(g(1))g'(1) = f'(2) \cdot (2) = (-2) \cdot (2) = -4$
Then the equation of the tangent line is, by point-slope,

$$y - (-1) = -4(x - 1)$$

15. The differentiable function $f(x)$ has the following values and derivatives:

x	$-1/3$	$1/3$	4	7	8	9
$f(x)$	-3	10	4	-1	-11	-7
$f'(x)$	-3	6	4	2	-8	5

The function $g(x)$ is shown below:



Graph of g

If $h(x) = f(g(x))$, find the equation of the tangent line to $h(x)$ at $x = 2$.

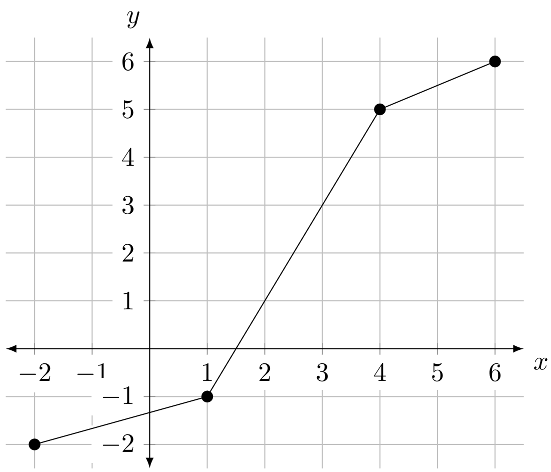
Solution: $h'(2) = f'(g(2))g'(2) = f'(4) \cdot (3) = (4) \cdot (3) = 12$
Then the equation of the tangent line is, by point-slope,

$$y - (4) = 12(x - 2)$$

16. The differentiable function $f(x)$ has the following values and derivatives:

x	$-5/3$	$-4/3$	1	3	$11/2$	6
$f(x)$	-4	5	-8	-3	11	-10
$f'(x)$	-7	3	-10	-2	4	11

The function $g(x)$ is shown below:



Graph of g

If $h(x) = f(g(x))$, find the equation of the tangent line to $h(x)$ at $x = 2$.

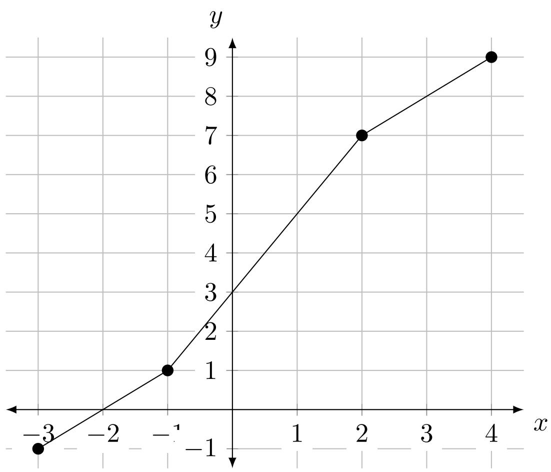
Solution: $h'(2) = f'(g(2))g'(2) = f'(1) \cdot (2) = (-10) \cdot (2) = -20$
Then the equation of the tangent line is, by point-slope,

$$y - (-8) = -20(x - 2)$$

17. The differentiable function $f(x)$ has the following values and derivatives:

x	0	1	3	5	8	9
$f(x)$	-6	11	-4	8	-9	2
$f'(x)$	3	-6	-10	9	-8	-2

The function $g(x)$ is shown below:



Graph of g

If $h(x) = f(g(x))$, find the equation of the tangent line to $h(x)$ at $x = 0$.

Solution: $h'(0) = f'(g(0))g'(0) = f'(3) \cdot (2) = (-10) \cdot (2) = -20$

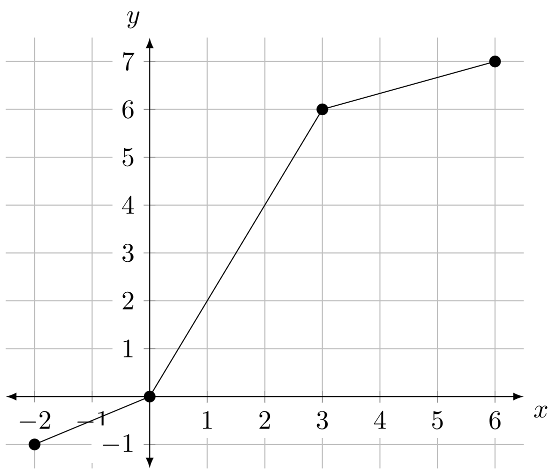
Then the equation of the tangent line is, by point-slope,

$$y - (-4) = -20(x - 0)$$

18. The differentiable function $f(x)$ has the following values and derivatives:

x	$-1/2$	0	2	4	$19/3$	$20/3$
$f(x)$	-1	-7	-4	8	-5	3
$f'(x)$	-10	-4	5	3	9	6

The function $g(x)$ is shown below:



Graph of g

If $h(x) = f(g(x))$, find the equation of the tangent line to $h(x)$ at $x = 1$.

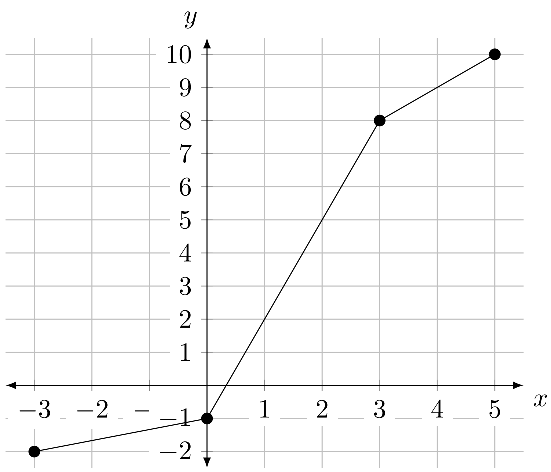
Solution: $h'(1) = f'(g(1))g'(1) = f'(2) \cdot (2) = (5) \cdot (2) = 10$
Then the equation of the tangent line is, by point-slope,

$$y - (-4) = 10(x - 1)$$

19. The differentiable function $f(x)$ has the following values and derivatives:

x	$-5/3$	$-4/3$	2	5	9	10
$f(x)$	4	-8	-2	3	-10	-7
$f'(x)$	4	-5	-3	-10	-7	1

The function $g(x)$ is shown below:



Graph of g

If $h(x) = f(g(x))$, find the equation of the tangent line to $h(x)$ at $x = 1$.

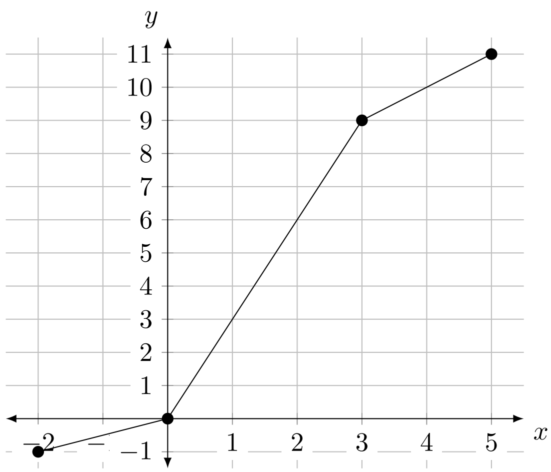
Solution: $h'(1) = f'(g(1))g'(1) = f'(2) \cdot (3) = (-3) \cdot (3) = -9$
Then the equation of the tangent line is, by point-slope,

$$y - (-2) = -9(x - 1)$$

20. The differentiable function $f(x)$ has the following values and derivatives:

x	$-1/2$	0	3	6	10	11
$f(x)$	4	-10	-3	5	6	-2
$f'(x)$	8	-10	9	-6	-5	4

The function $g(x)$ is shown below:



Graph of g

If $h(x) = f(g(x))$, find the equation of the tangent line to $h(x)$ at $x = 1$.

Solution: $h'(1) = f'(g(1))g'(1) = f'(3) \cdot (3) = (9) \cdot (3) = 27$
Then the equation of the tangent line is, by point-slope,

$$y - (-3) = 27(x - 1)$$