## Finding absolute extrema – Answers

Determine the absolute extrema of the given function on the specifica men var.			
1.	$f(x) = 8x^3 + 81x^2 - 42x - 8 \text{ on } [-8, 2]$ Absolute maximum of 1511 at $x = -7$ Absolute minimum of -13.3125 at $x = \frac{1}{4}$	2.	$f(x) = 8x^3 + 81x^2 - 42x - 8$ on $[-4, 2]$ Absolute maximum of 944 at $x = -4$ Absolute minimum of $-13.3125$ at $x = \frac{1}{4}$
3.	$R(t) = 1 + 80t^{3} + 5t^{4} - 2t^{5} \text{ on } [-4.5, 4]$ Absolute maximum of 4353 at $t = 4$ Absolute minimum of -1791 at $t = -4$ $h(z) = 4z^{3} - 3z^{2} + 9z + 12 \text{ on } [-2, 1]$ Absolute maximum of 22 at $z = 1$ Absolute minimum of -50 at $z = -2$	4. 6.	$R(t) = 1 + 80t^{3} + 5t^{4} - 2t^{5} \text{ on } [0, 7]$ Absolute maximum of 8209 at $t = 6$ Absolute minimum of 1 at $t = 0$ $g(x) = 3x^{4} - 26x^{3} + 60x^{2} - 11 \text{ on } [1, 5]$ Absolute maximum of 114 at $x = 5$ Absolute minimum of 26 at $x = 1$
7.	Absolute minimum of $30 \text{ at } z = 2$ $Q(x) = (2 - 8x)^4 (x^2 - 9)^3 \text{ on } [-3, 3]$ Absolute maximum of 0 at $x = -3, x = \frac{1}{4}, x = 3$ Absolute minimum of $1.38 \times 10^7$ at $x = 1.8239$	8.	$h(w) = 2w^{3}(w+2)^{5} \text{ on } \left[-\frac{5}{2}, \frac{1}{2}\right]$ Absolute maximum of 24.4141 at $w = \frac{1}{2}$ Absolute minimum of -2.5749 at $w = -\frac{3}{4}$
9.	$f(z) = \frac{z+4}{2z^2+z+8} \text{ on } [-10,0]$ Absolute maximum of $\frac{1}{2}$ at $z = 0$ Absolute minimum of $-0.03128$ at $z = -4-3\sqrt{2}$	10.	$A(t) = t^2 (10 - t)^{\frac{2}{3}}$ on [2, 10.5] Absolute maximum of 103.613 at $t = \frac{15}{2}$ Absolute minimum of 0 at $t = 10$
11.	$f(y) = \sin\left(\frac{y}{3}\right) + \frac{2y}{9} \text{ on } [-10, 15]$ Absolute maximum of 2.3744 at $y = 15$ Absolute minimum of -2.2790 at $y = -6.9016$	12.	$g(w) = e^{w^3 - 2w^2 - 7w} \text{ on } \left[-\frac{1}{2}, \frac{5}{2}\right]$ Absolute maximum of $e^{\frac{23}{8}}$ at $w = -\frac{1}{2}$ Absolute minimum of $e^{-\frac{392}{27}}$ at $w = \frac{7}{3}$

Determine the absolute extrema of the given function on the specified interval.

