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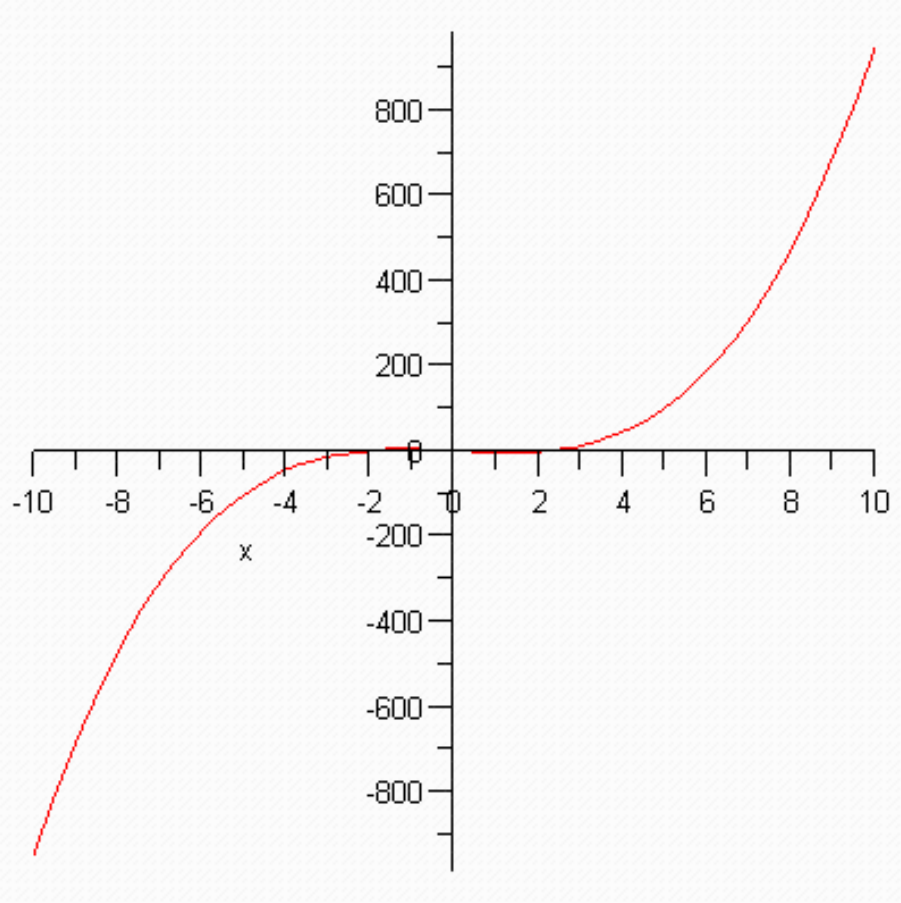
MAPLE ASSIGNMENT #1 -- SOLUTIONS

#1 (A)

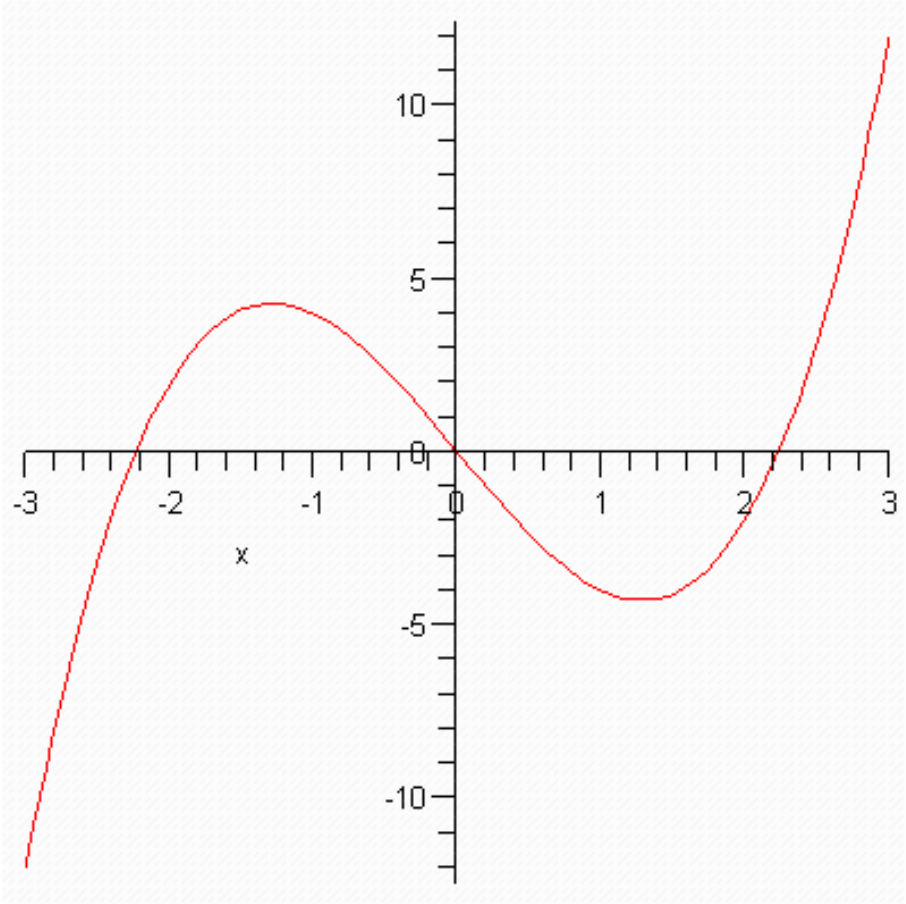
> $f := x \to x^3 - 5 \cdot x$

$$f := x \to x^3 - 5\,x$$

> $plot(f(x), x = -10..10)$



> $plot(f(x), x = -3..3);$



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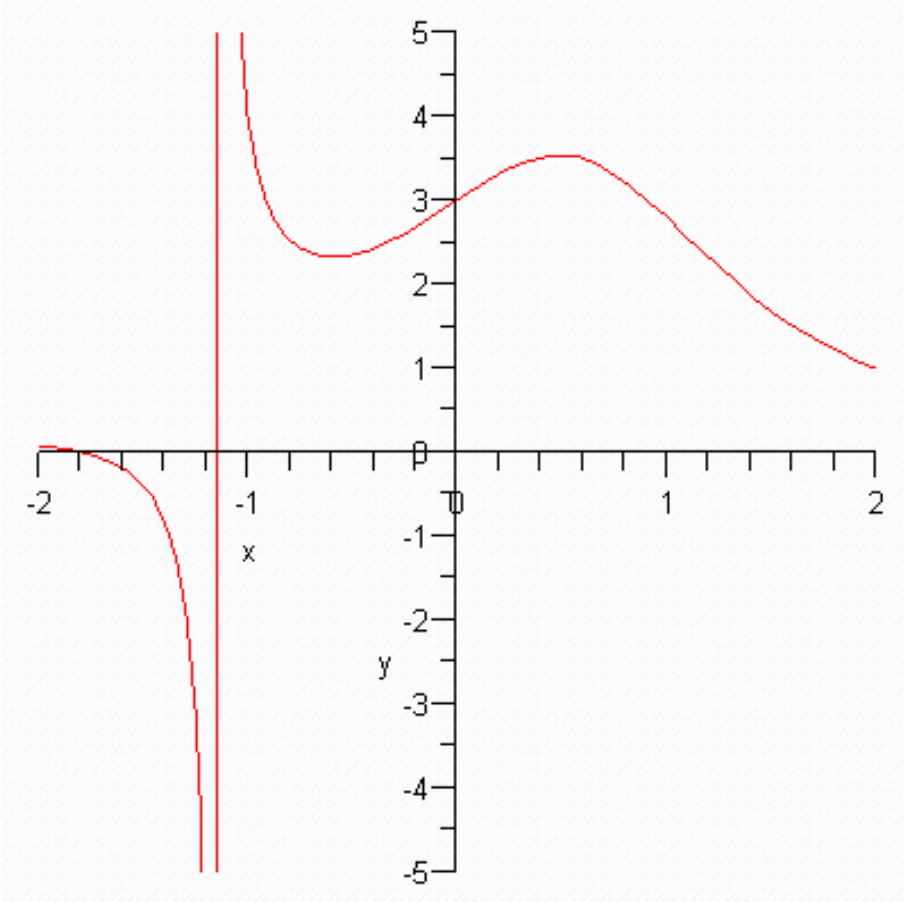
#1 (B)

> $g := x \to \frac{(5 \cdot x^3 + 9 \cdot x^2)}{(2 \cdot x^5 + 3 \cdot x^2)}$

$$g := x \to \frac{5\,x^3 + 9\,x^2}{2\,x^5 + 3\,x^2}$$

> $plot(g(x), x = -2..2, y = -5..5)$



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#2(A)

> $h := x \to \dfrac{\left(3 \cdot x^2 - 7 \cdot x^{\frac{3}{2}} - sqrt(x) + 5\right)}{x - 1}$

$$h := x \to \frac{3\,x^2 - 7\,x^{(3/2)} - \sqrt{x} + 5}{x - 1}$$

> $h(0)$

$$-5$$

> $h(2.0)$

$$-4.213203412$$

> $h(.5)$

$$-5.136038970$$

> $h(1.5)$

$$-4.669132022$$

> $h(.9)$

$$-5.046119230$$

> $h(1.1)$

$$-4.946369720$$

> $h(.99)$

$$-5.004962400$$

> $h(1.01)$

$$-4.994962100$$

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MY GUESS IS THAT THE LIMIT IS EQUAL TO -5.0

#2(B)

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> limit(h(x), x = 1)
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$$-\frac{1}{5}$$

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