Questions from 2.3?

$$h(t) = t^3 - 2t^2 - 7t + 2$$

$$-2, .268, 3.732$$

$$\begin{array}{r|rrrr} -2 & 1 & -2 & -7 & 2 \\ & & -2 & 8 & -2 \\ \hline & 1 & -4 & 1 & 0 \end{array}$$

$$x^2 - 4x + 1$$

$$x = \frac{4 \pm \sqrt{16 - 4(1)(1)}}{2}$$
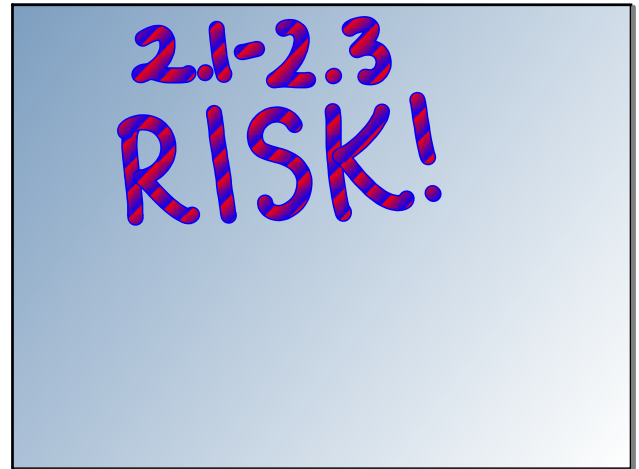
$$x = \frac{4 \pm \sqrt{12}}{2}$$

$$\frac{4 \pm 2\sqrt{3}}{2}$$

$$x = 2 \pm \sqrt{3}$$

$$\left(x - (2+\sqrt{3})\right)\left(x - (2-\sqrt{3})\right)$$

$$(x - 2 - \sqrt{3})(x - 2 + \sqrt{3})(x + 2)$$

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2.1-2.3 RISK!

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	Answer	Wager	Points
			100
1			
2			
3			
4			
5			
6			

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1. Find the vertex form of the quadratic function whose vertex is (4,1) and that passes through the point (6, -7)

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$$f(x)=-2(x-4)^2+1$$

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2. Use the previous function to find where f(x)<0. Round answers to the nearest tenth.

$$f(x)=-2(x-4)^2+1$$

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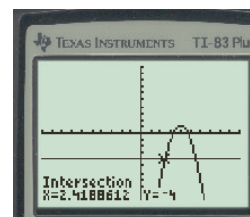**2.** Use the previous function to find where f(x)<0. Round answers to the nearest tenth.

$$f(x)=-2(x-4)^2+1$$

$$(-\infty,3.3)\cup(4.7,\infty)$$

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{Pause :: What if we wanted to find where f(x) ≥ -4?}

2ND TRACE
5: Intersect
Scroll to your intersection point
ENTER
ENTER
ENTER

$$[2.4,5.6]$$

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3. An online music company's profit function is given below, where x is the number of songs sold per week. Use a graphing calculator to find the number of songs a company should sell per week in order to maximize its profit.

$$P = 1.75x - (0.0005x^2 + 500)$$

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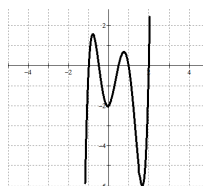
$$P = 1.75x - (0.0005x^2 + 500)$$

1750 songs

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4. Use the graph to determine the function's degree (even or odd) and sign (+ or -) of the leading coefficient.

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Odd degree
Positive leading coefficient

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5. Use synthetic division to show that x=-3 is a solution of the following equation. Then, use the result to factor the polynomial completely. List all real zeros of the function.

$$3x^3 + 2x^2 - 19x + 6 = 0$$

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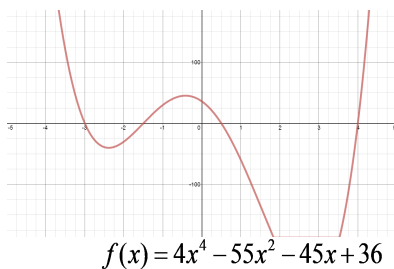
$$3x^3 + 2x^2 - 19x + 6 = 0$$

Factored Form: (x+3)(3x-1)(x-2)
Real Zeros: -3, 1/3, 2

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6. List the possible rational zeros of f. Then use the graph to determine all the real zeros of f.

$$f(x) = 4x^4 - 55x^2 - 45x + 36$$

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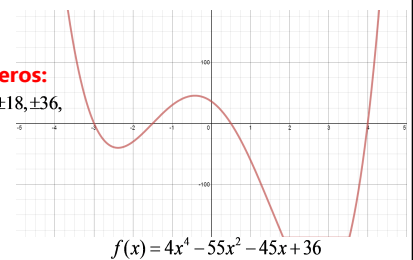
Possible Rational Zeros:
$\pm 1, \pm 2, \pm 3, \pm 4, \pm 6, \pm 9, \pm 12, \pm 18, \pm 36,$
$\pm \dfrac{1}{2}, \pm \dfrac{3}{2}, \pm \dfrac{9}{2}, \pm \dfrac{1}{4}, \pm \dfrac{3}{4}, \pm \dfrac{9}{4}$

Actual Zeros:
$-3, -\dfrac{3}{2}, \dfrac{1}{2}, 4$

$$f(x) = 4x^4 - 55x^2 - 45x + 36$$

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Want more practice?

Pg. 173: 11 (also find intervals of x where y<0),
14, 21, 61, 63, 66, 69

{not for a grade}

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