Pre_Calc POWs and HOWs for Week 32 to week 35

Week Number	POW	HOW
Week 32 Due 4/24/2015	**POW 32:** 1)Problems on PDF, see Problem below	**HOW 32:** 1)Page 767 Use problem #12 to Show if Problem #4 is true or False. 2) Page 767 Pr 34: Use Cramer's rule solve problem by hand and use graphing calculator to check your answer.
Week 33 Due 5/1/2015	**POW 33:** 1) Page 914 Problem 12 and 14. 2) Problems on PDF, see on page 2.	**HOW 33:** 1)Page 826 Problem 61 2) Page 826 Problem 62 3) Page 814 Problem 56
Week 34 Due 5/8/2015	**POW 34:** From chapter 13, coming soon	**HOW 34:** 1)Page 826 Problem 85 2) Page 826 Problem 86
Week 35 Due 5/15/2015	**POW 35:** From chapter 13, coming soon	**HOW 35:** 1)Chapter test pp.828 (odd and non-identical problems)

Pre-Calc POW 32

Question 2

You may not use a calculator in this question.

2.1 Determine the value of:

$$\frac{\sin(-120^\circ)\cos 660^\circ \cdot \tan 315^\circ}{(\cos 310^\circ \cdot \sin 140^\circ) + \sin^2 410^\circ} \quad (8)$$

2.2 Simplify:

2.2.1 $$\frac{\sin(180^\circ - x) \cdot \tan(90^\circ - x)}{\operatorname{cosec}(90^\circ - x) \cdot \cos(360^\circ - x) \cdot \cot(180^\circ - x)} \quad (7)$$

2.2.2 $$\frac{\sec^2(180^\circ + x) - \frac{\cos^2(270^\circ + x)}{(1 - \sin^2 x)}}{\sin(270^\circ - x) \cdot \tan(180^\circ + x) \cdot \operatorname{cosec}(-x)} \quad (10)$$

2.3 Prove the following identity:

$$\frac{\cos x}{\sin x - 1} - \frac{1}{\tan x - \operatorname{cosec} x \cdot \sec x} = -\sec x \quad (11)$$

2.4 If $\cot\theta = a$, prove that

$$a + \frac{1}{a} = \operatorname{cosec}(180^\circ - \theta)\operatorname{cosec}^2(270^\circ - \theta)\cos(-\theta) \quad (10)$$

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Pre Calc POW 33

Question 7

7.1 If $f(x) = 2x - \frac{1}{x}$, determine $f'(x)$ using first principles. (6)

7.2 Determine: $\frac{d}{dx}\left(-3x^4 - \frac{x}{\sqrt{x}} + 6x\sqrt{x}\right)$ (4)

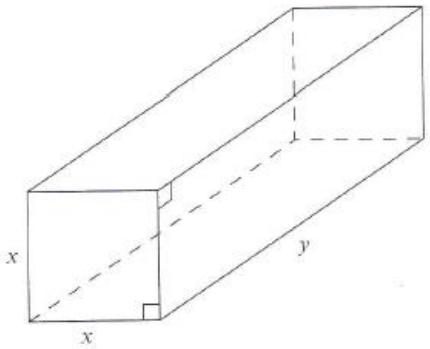
7.3 Given: $f(x) = x^3 - 3x^2 - 9x - 5$

7.3.1 Draw a sketch graph of the function f. Clearly show the co-ordinates of the turning points and all the intercepts on the axes.

7.3.2 Use your graph and determine all the values of x for which $f(x) \cdot f'(x) > 0$.

7.4 A piece of wire, three metres long, is bent into the framework of a rectangular prism with a square base, as shown in the figure.

Calculate the lengths of the sides of the frame which will ensure the maximum volume of a solid block with the same dimensions. (8)



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Problems 12 and 14