MA 160 Quiz #1 - Summer, 2008

(20 points) Name _____

Show all of your work on the quiz paper. Full credit is not given unless the answer follows from the work shown.

2. (2 points) A function f is given by $f(x) = 2x^2 - 7x + 4$. Find and simplify $f(a+3)$.

3. (2 points) If $f(x) = \begin{cases} 4x^2 - 8 & \text{for } x < -2 \\ 3x + 10 & \text{for } x \geq -2 \end{cases}$

Evaluate

(a) $f(-5)$ (b) $f(-2)$

4. (2 points) Express each of the following in interval notation.

(a) $-3 < x \leq 7$ (b) $x > 4$

5. (4 points) Solve the equation.

$$x - \frac{8}{x} = 3$$

6. (2 points) Factor the polynomial $3x^2 - 6x - 24$.

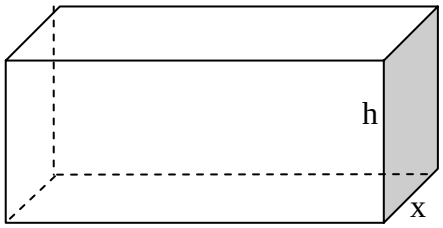
7. (1 point) Rewrite using positive exponents: $-7x^{-5}$

8. (2 points) Rewrite each radical expression in exponential notation.

(a) $\sqrt[4]{x^3}$

(b) $x^3\sqrt{x}$

9. (3 points) A rectangular box open at the top has length equal to three times the width. If x represents the width and h represents the height of the box, write a formula for the surface area of the box.



10. (4 points) The daily cost (in dollars) of producing x units of a certain product is given by the function $C(x) = 347 + 23.8x - 0.8x^2 + 0.01x^3$.

(a) Graph $C(x)$ on the window [0, 80] by [-500, 3000] and copy your graph into the space below.

(b) What is the cost of producing 45 items?

(c) What is the additional cost of increasing the number of items produced from 45 to 46?

(d) At what production level will the daily cost be $1300? Round your answer to the nearest integer.