Question:	1	2	Total
Points:	5	5	10
Score:			

1. (5 points) Simplify the following:

   a.

   $$\sqrt{40} =$$

   Solution: $\sqrt{40} = \sqrt{4 * 10} = 2\sqrt{10}$

   b.

   $$\sqrt{16x^3} =$$

   Solution: $\sqrt{16x^3} = 4x\sqrt{x}$

   c.

   $$\sqrt{27} + \sqrt{75}$$

   Solution: $\sqrt{27} + \sqrt{75} = \sqrt{9 * 3} + \sqrt{25 * 3} = 3\sqrt{3} + 5\sqrt{3} = 8\sqrt{3}$

2. (5 points) Simplify the following complex fraction:

$$\frac{3 - \dfrac{1}{2x}}{2 + \dfrac{1}{x^2}} =$$

Solution:

$$\frac{3 - \dfrac{1}{2x}}{2 + \dfrac{1}{x^2}} = \frac{3 \cdot \dfrac{2x}{2x} - \dfrac{1}{2x}}{2 \cdot \dfrac{x^2}{x^2} + \dfrac{1}{x^2}} = \frac{\dfrac{6x - 1}{2x}}{\dfrac{2x^2 + 1}{x^2}} = \frac{6x - 1}{2x} \cdot \frac{x^2}{2x^2 + 1} = \frac{x(6x - 1)}{2(2x^2 + 1)} = \frac{6x^2 - x}{4x^2 + 2}$$