Problem set - powers and roots - 1

Name: _____ Date: _____

Solve each problem. Unless directed otherwise, round answers to the nearest hundredth. Show all of your work. You may use a calculator and notes.

1. Simplify each item.

   (a) 2^3

   (b) 3^2

   (c) 6^2

   (d) 3^4

   (e) 12^3

   (f) 3.25^2

   (g) $\left(\frac{1}{3}\right)^2$

   (h) $\left(2\frac{7}{8}\right)^2$

2. Simplify each item.

   (a) $\sqrt{4}$

   (b) $\sqrt{10}$

   (c) $\sqrt[3]{8}$

   (d) $\sqrt[3]{55}$

   (e) $\sqrt[4]{256}$

   (f) $\sqrt{-9}$

   (g) $\sqrt[3]{-8}$

   (h) $\sqrt{24.67}$

(i) $\sqrt{3^2+4^2}$ (j) $\sqrt{5^2-2^2}$

3. Simplify each item.

(a) $\sqrt{2}$ (d) $8^{\frac{2}{3}}$

(b) $2^{0.5}$ (e) $12^{0.333}$

(c) $9^{\frac{1}{2}}$ (f) $5.2^{2.6}$

4. Simplify each item.

(a) $\sqrt{7^2}$ (c) $\sqrt[4]{12^3}$

(b) $(\sqrt[3]{19})^3$ (d) $\sqrt[3]{22^4}$

5. Simplify the expression $\dfrac{\sqrt{7^2-3^2}}{7^2+3^2}$

6. Simplify the expression $\sqrt{\dfrac{1}{5^2+6^2}}$

7. The time t in seconds that it takes a rock to fall to the earth after being dropped from height h in feet is given by $t = \sqrt{h}/4$. A rock dropped from 100 feet falls to earth in 2.5 seconds. To the nearest tenth of a second, how long does it take a rock dropped from 1000 feet to fall to earth?