**Foundations and Pre-Calculus 10
Chapter 2 – Practice Test**

1. Evaluate each radical.
a) $\sqrt[3]{1000}$ b) $\sqrt{0.81}$

c) $\sqrt[6]{64}$ d) $\sqrt[4]{\frac{81}{625}}$

2. Estimate the value of each radical to 1 decimal place.
 a) $\sqrt{11}$ b) $\sqrt[3]{-12}$ c) $\sqrt[4]{15}$

3. For $\sqrt[3]{35}$, does its decimal form terminate, repeat, or neither? Support your answer with an explanation.

4. Tell whether each number is rational, irrational, an integer, whole number, or natural number.
a) -2 b) 17 c) $\sqrt{16}$

d) $\sqrt{32}$ e) 0.756 f) $12.\overbar{3}$

g) 0 h) $\sqrt[3]{81}$ i) $π$

5. Write each radical in simplest form.
a) $\sqrt{150}$ b) $\sqrt[3]{135}$

c) $\sqrt{112}$ d) $\sqrt[4]{162}$

6. Write each mixed radical as an entire radical.
a) $6\sqrt{5}$ b) $3\sqrt{14}$

c) $4\sqrt[3]{3}$ d) $2\sqrt[4]{2}$

7. Arrange these numbers in order from greatest to least, without using a calculator.
$5\sqrt{2}$, $4\sqrt{3}$, $3\sqrt{6}$, $2\sqrt{7}$, $6\sqrt{2}$

8. Express each power as a radical.
a) $12^{\frac{1}{4}}$ b) $(-50)^{\frac{5}{3}}$

c) $1.2^{0.5}$ d) $(\frac{3}{8})^{\frac{1}{3}}$

9. Express each radical as a power.
a) $\sqrt{1.4}$ b) $\sqrt[3]{13^{2}}$

c) $(\sqrt[5]{2.5})^{4}$ d) $(\sqrt[4]{\frac{2}{5}})^{3}$

10. Evaluate each power without using a calculator.
a) $16^{0.25}$ b) $1.44^{\frac{1}{2}}$

c) $(-8)^{\frac{5}{3}}$ d) $(\frac{9}{16})^{\frac{3}{2}}$

11. Arrange these numbers in order from greatest to least.
$\sqrt[4]{5}$, $5^{\frac{2}{3}}$, $\sqrt[3]{5}$, $5^{\frac{3}{4}}$ $(\sqrt{5})^{3}$

12. Evaluate each power without using a calculator.
a) $2^{-2}$ b) $(\frac{2}{3})^{-3}$ c) $(\frac{4}{25})^{-\frac{3}{2}}$

13. Simplify.
a) $\left(3m^{4}n\right)^{2}$ b) $\left(\frac{x^{2}y}{y^{-2}}\right)^{-2}$

c) $\left(16a^{2}b^{6}\right)^{-\frac{1}{2}}$ d) $\left(\frac{r^{3}s^{-1}}{s^{-2}r^{-2}}\right)^{-\frac{2}{3}}$

14. Simplify. Show your work.

a) $\left(a^{3}b\right)\left(a^{-1}b^{4}\right)$ b) $\left(x^{\frac{1}{2}}y\right)\left(x^{\frac{3}{2}}y^{-2}\right)$

c) $\frac{a^{3}}{a^{5}}∙a^{-3}$ d) $\frac{x^{2}y}{x^{\frac{1}{2}}y^{-2}}$

15. Evaluate.
a) $(\frac{2}{3})^{\frac{3}{2}}∙(\frac{2}{3})^{\frac{1}{2}}$ b) $\frac{\left(-5.5\right)^{\frac{2}{3}}}{\left(-5.5\right)^{-\frac{4}{3}}}$

c) $\left[\left(-\frac{12}{5}\right)^{\frac{1}{3}}\right]^{6}$ d) $\frac{0.16^{\frac{3}{4}}}{0.16^{\frac{1}{4}}}$

16. Simplify

a) $\left(s^{-1}t^{\frac{1}{3}}\right)\left(s^{4}t^{3}\right)$

b) $\left(\frac{4c^{\frac{1}{3}}}{d^{3}}\right)^{-3}$