## Math 06, Homework 1 on Sections 7.1, 7.2, 7.3

due Mon, Sept 16 at the start of class.

Write all your answers on a separate sheet. These first ten questions are 1 point each. It is very important that you show clearly any work you had to do to get the answer. Check your answers match the answers below.
(1) Find: $\sqrt[4]{3^{4}}$
(2) In a right triangle with legs of length 9, 12, find the length of the hypotenuse.
(3) Use a calculator to find $\sqrt{156}$ correct to 3 places.
(4) Simplify: $\sqrt[3]{-48}$
(5) Assume $m$ is positive and simplify: $\sqrt{98 m^{3}}$
(6) Simplify: $\sqrt{\frac{5}{16}}$
(7) Simplify: $\frac{7}{\sqrt{12}}$
(8) Simplify and subtract: $\sqrt{54 w}-\sqrt{24 w}$
(9) Multiply and simplify: $(\sqrt{6}-2 \sqrt{3})(\sqrt{6}-3 \sqrt{3})$
(10) Simplify: $\frac{\sqrt{w}+3}{\sqrt{w}-3}$

These next ten questions are 3 points each. Show clearly all your working out and reasoning.
(11) Find: $\sqrt{400}$
(12) What is: $\sqrt[3]{-8}$
(13) Find: $-\sqrt[4]{625}$
(14) Find the distance between the points $(-3,2)$ and $(2,6)$
(15) Simplify: $\sqrt{200}$
(16) Assume $x$ is positive and simplify: $\sqrt{45 x^{2}}$
(17) Assume $w$ is positive and simplify: $\sqrt{\frac{50 w^{4}}{9}}$
(18) Simplify and add: $2 \sqrt{40}+\sqrt{90}$
(19) Multiply and simplify: $\sqrt{3}(\sqrt{5}+\sqrt{3}-7)$
(20) Rationalize the denominator and simplify: $\frac{2}{3-\sqrt{2}}$

## Answers to questions (1)-(10):

(1) 3
(2) The length of the hypotenuse is 15
(3) 12.490
(4) $-2 \sqrt[3]{6}$
(5) $7 m \sqrt{2 m}$
(6) $\frac{\sqrt{5}}{4}$
(7) $\frac{7 \sqrt{3}}{6}$
(8) $\sqrt{6 w}$
(9) $24-15 \sqrt{2}$
(10) $\frac{w+6 \sqrt{w}+9}{w-9}$

