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: $\sqrt{98m^3}$
- (6) Simplify: $\sqrt{\frac{5}{16}}$ (7) Simplify: $\frac{7}{\sqrt{12}}$ (8) Simplify and subtract: $\sqrt{54w} - \sqrt{24w}$ (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: $\sqrt{45x^2}$
- (17) Assume w is positive and simplify: $\sqrt{\frac{50w^4}{9}}$

- (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) $7m\sqrt{2m}$
- (6) $\frac{\sqrt{5}}{4}$
- (7) $\frac{7\sqrt{3}}{6}$
- (8) $\sqrt{6w}$
- (9) $24 15\sqrt{2}$

(10)
$$\frac{w+6\sqrt{w}+9}{w-9}$$