

Math 095
Exam #3
Fall 2010

Name:

1. 10 pts. each Factor completely.

(a) $p^2 - \frac{1}{4}$

(b) $4x^2 - 9$

(c) $x^4 - 1$

2. 10 pts. each Solve each equation.

(a) $m^2 = 4 + 3m$

(b) $9t^2 + 12t = -4$

(c) $x^2 = 7x$

3. 15 pts. The longer leg of a right triangle is 1 m longer than the shorter leg. The hypotenuse is 1 m shorter than twice the shorter leg. Find the length of the shorter leg of the triangle.

4. 10 pts. each Write each rational expression in lowest terms.

(a) $\frac{8z - 24}{4z - 12}$

(b) $\frac{6y^2 - 6y}{2y - 2}$

5. 10 pts. each Multiply or divide. Write each answer in lowest terms.

(a) $\frac{4(y - 2)}{x} \cdot \frac{3x}{6(y - 2)^2}$

(b) $\frac{35q^8}{9q^5} \div \frac{25q^6}{10q^5}$

(c) $\frac{2w^2 - w - 1}{2w^2 + 5w + 3} \div \frac{4w^2 - 1}{2w^2 + w - 3}$

6. 10 pts. each Add or subtract. Write each answer in lowest terms.

(a) $\frac{4x}{x + 2} - \frac{2 + 3x}{x + 2}$

(b) $\frac{3}{5x} + \frac{9}{4x}$

(c) $\frac{3}{x - 4} + \frac{2}{x}$

7. 10 pts. each Solve each equation.

(a) $\frac{5t}{4} + t = 9$

(b) $\frac{2z + 1}{5} = \frac{7z + 5}{15}$

(c) $\frac{8p}{5} = \frac{3p - 4}{2} + \frac{5}{2}$

8. 10 pts. If 6 gallons of premium gasoline cost \$22.74, how much would it cost to completely fill a 15-gallon tank?

9. 15 pts. On May 25, researchers at an oxbow lake called Old Thunderbum tagged 840 fish. When they returned a few weeks later, their sample of 1000 fish contained 18 that were tagged. Give an approximation of the fish population in Old Thunderbum to the nearest hundred.