Math 093

Exam 2

Fall 2010

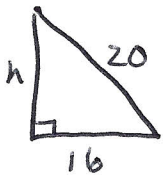
name Key

Show ALL work

1) Dr. Benton wants to investigate the potential spread of germs by contact. She knows that the number of possible handshakes within a group of x people, assuming each person shakes every other person's hand only once, is given by $N = \frac{1}{2}(x^2 - x)$. There are 30 people at a party, how many handshakes are possible?

$$N = \frac{1}{2}(30^2 - 30) = \frac{1}{2}(900 - 30) = \frac{1}{2}(870) = 435$$

2) A right triangle has a 16 foot leg and a 20 foot long hypotenuse. What is the length of the other leg?



$$h^2 + 16^2 = 20^2$$
$$h^2 + 256 = 400$$
$$h^2 = 144$$
$$h = 12$$

3) Find all numbers for which the following rational expression is not defined. $\frac{x-3}{x^2-1}$

$x = \pm 1$

4) Simplify

a) $\frac{4x^3}{2x} = 2x^2$

b) $\frac{x^2-4}{x-2} = \frac{(x-2)(x+2)}{x-2} = x+2$

5) Find the reciprocal of $\frac{x+3}{x-2}$) $\frac{x-2}{x+3}$