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Math 10C **Name** _____

Systems HW **Date** _____

1. Solve the following systems.

a) $2x + y = 4$
$2x - y = 8$

$y = -2x + 4$

$y = 2x - 8$

$(3, -2)$

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b) $x + 2y = 6$
$3x + y = -7$

$\frac{2y}{2} = \frac{-1x}{2} + \frac{6}{2}$

$y = \frac{-1}{2}x + 3$

$y = -3x - 7$

$(-4, 5)$

2. Define the variables and write the equations you would use to solve the following problem. **DO NOT SOLVE!**

A person invests a total of \$5000. Part of the \$5000 was invested at 6% per annum and the rest at 8% per annum. After one year, the total interest earned was \$376. How much was invested at each rate.

0.06

0.08

Let $x \Rightarrow$ 6% / annum

$y \Rightarrow$ 8% / annum

3

$x + y = 5000$

$0.06x + 0.08y = 376$

3. During a sale at a clothing store, three shirts and one hat cost \$121, but two shirts and three hats cost \$139. Use the following information to determine the sale price of one shirt and one hat.

The cost of 1 shirt = s
The cost of 1 hat = h

$3s + h = 121$ (×3)
$2s + 3h = 139$

$9s + 3h = 363$
$-(2s + 3h = 139)$
$7s = 224$
$s = 32$

$3(32) + h = 121$
$96 + h = 121$
$-96 \quad -96$
$h = 25$

\$32 for a shirt & \$25 for a hat

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4. For a hockey game, 4000 tickets were sold. The tickets cost \$15 for an adult and \$10 for a student. The total value of the ticket sales was \$51000. Determine the number of adults and students who attended the competition.

variables: number of adult tickets sold = a

number of student tickets sold = s

equation for tickets sold:

$a + s = 4000$

6

equation for revenue:

$15a + 10a = 51000$

Solve:

$15a + 10a = 51000$
$-(10a + 10a = 40000)$
$5a = 11000$

$a = 2200$

$2200 + s = 4000$
$-2200 \quad -2200$
$s = 1800$

2200 adult tickets & 1800 student tickets