ST. JEAN DE BREBEUF CATHOLIC SECONDARY SCHOOL

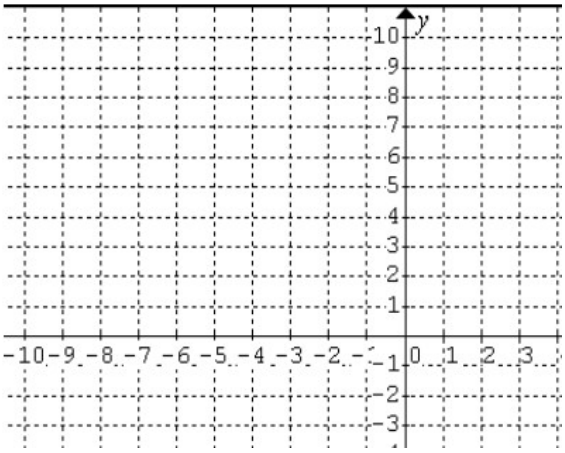
MFM 2P1 Name: _____ Date: _____

REVIEW – CHAPTER 5

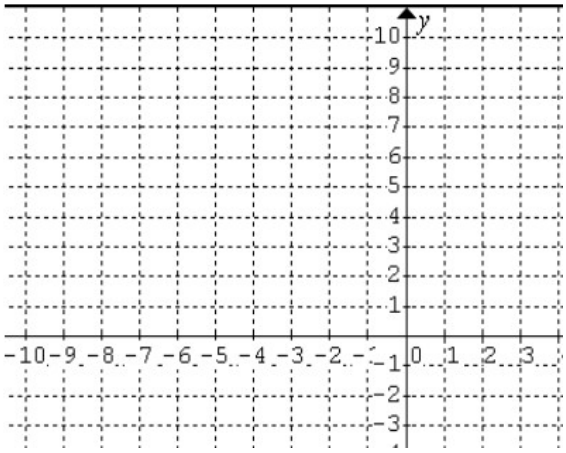
5.1 – SOLVE LINEAR SYSTEMS BY GRAPHING

1. Graph each linear system to determine the **point of intersection**

(a) Equation 1: $y = x - 5$
Equation 2: $y = -x + 3$

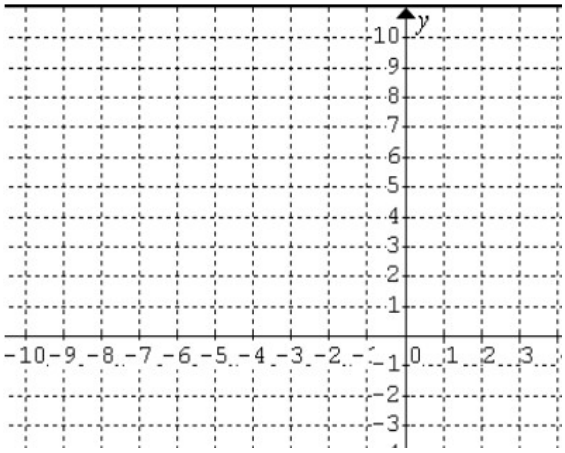


(b) Equation 1: $y = 2x + 2$
Equation 2: $y = 3x + 1$

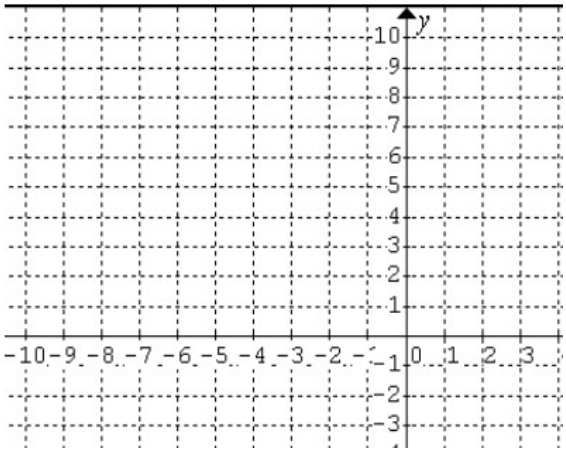


2. Graph each linear system to determine the **point of intersection**

(a) Equation 1: $y = -4x$
Equation 2: $y = \frac{1}{2}x - 9$



(b) Equation 1: $y = 3x$
Equation 2: $y = \frac{2}{3}x - 7$



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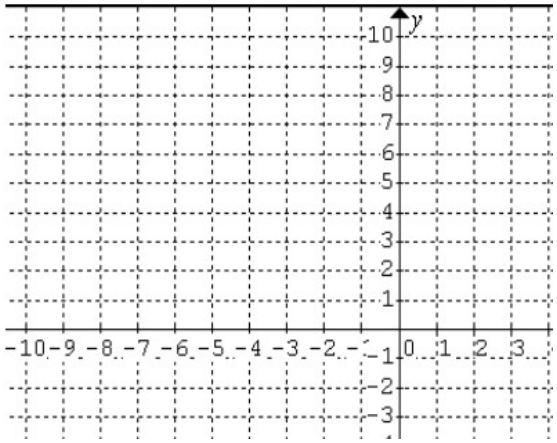
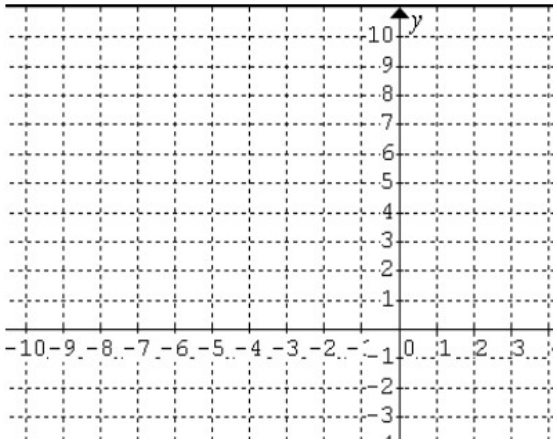
3. Re-arrange each equation into the form of **y = mx + b** and determine the **point of intersection** by graphing

EQUATIONS	***EQUATIONS IN THE FORM y = mx + b***	***GRAPH***
(1) x + y = 2 (2) 2x – 5y = 25		
(1) 4x – y = 6 (2) – x + 2y = 2		

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5.2 – SOLVE LINEAR SYSTEMS BY SUBSTITUTION

1. Solve the following system of linear equations by substitution

(a) Equation 1: $x + y = 5$ Equation 2: $y = 2x – 4$

(b) Equation 1 : $3x – 2y = = – 23$ Equation 2 : $x = y – 9$

2. Solve the following system of linear equations by substitution

(a) Equation 1: $5x – 2y = 4$ Equation 2: $x + 2y = 8$

(b) Equation 1 : $3x + 5y = – 32$ Equation 2 : $x – 3y = 22$

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5.3 – SOLVE LINEAR SYSTEMS BY ELIMINATION

1. Use the elimination method to solve each linear system

(a) Equation 1: $x + 2y = 11$
Equation 2: $x + 3y = 14$

(b) Equation 1 : $3x – y = 23$
Equation 2 : $5x + y = 33$

(c) Equation 1 : $x + 7y = 8$
Equation 2 : $– x + 2y = 10$

(d) Equation 1 : $3x + y = 19$
Equation 2: $7x + y = 51$

2. Use the elimination method to solve each linear system. *** ONE of the equations must be *multiplied* by a constant!

(a) Equation 1: $x + 2y = 16$
Equation 2: $3x + 4y = 42$

(b) Equation 1: $4x + y = 14$
Equation 2: $5x + 2y = 16$

(c) Equation 1: $7x + 2y = 28$
Equation 2: $x – 3y = 27$

5.4 – SOLVE PROBLEMS INVOLVING LINEAR SYSTEMS

1. Ari is **6 years** older than Sasha. The sum of their ages is **38**. The linear system below represents this scenario.

"a" represents Ari's age and **"s"** represents Sasha's age

Equation 1 (Ari's age): $a = s + 6$
Equation 2 (Sum of their ages): $a + s = 38$

Use **substitution** to determine each of their ages.

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2. Admission to the Electronic Dance Music festival is **$25 for adults** and **$15 for teenagers**. A total of **1000 tickets** were sold with total sales equalling **$22 500**.

> **"a"** represents the # of adults attending the festival and **"t"** represents the # of teenagers. The linear system below represents this scenario
>
> Equation 1 (Total # of tickets): $a + t = 1000$
> Equation 2 (Total sales): $25a + 15t = 22\ 500$

Use **elimination** to determine the number of adults and teenagers attending.

3. Lydia and Calvin both work at an electronics store. Their yearly salaries are represented by the linear system below.

> **"S"** represents their yearly salary and **"n"** represents the number of computers sold
>
> Lydia's salary: $S = 26\ 500 + 20n$
> Calvin's salary: $S = 28\ 000 + 15n$

What method would be easiest to use for this? _____

Use the above method to determine the **number of computers** that must be sold for them to have the *same* salary.

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4. Hamid invests a **total of $7000** into two different banks. The World Bank pays **5%** interest per year and Kings Bank pays **8%** interest per year. Hamid earns a total of **$500** interest. The scenario is represented by the linear system below.

> **"w"** represents the amount invested in World Bank and **"k"** represents the amount invested in Kings Bank
>
> Equation 1 (total invested): $w + k = 7000$
> Equation 2 (interest earned): $0.05w + 0.08k = 500$

What method would be easiest to use for this? _____

Use the above method to determine the **amount invested** at the World Bank and Kings Bank.

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REVIEW – CHAPTER 5 SOLUTIONS

5.1

1. (a) (4, – 1) (b) (1, 4) 2. (a) (2, – 8) (b) (– 3, – 9)

3. (a) (5, – 3) (b) (2, 2)

5.2

1. (a) (3, 2) (b) (– 5, 4) 2. (a) (2, 3) (b) (1, – 7)

5.3

1. (a) (5, 3) (b) (7, – 2) (c) (– 6, 2) (d) (8, – 5)

2. (a) (10, 3) (b) (4, – 2) (c) (6, – 7)

5.4

1. Ari = 22 years old, Sasha = 16 years old

2. Adults = 750, Teenagers = 250

3. 300 computers

4. World Bank = $2000, Kings Bank = $5000