Unit 4 Day 10: Final Evaluation

Grade 10 Applied

Minds On: 10 Min.

Action: 60 Min.

Consolidate/ Debrief: 5 Min

Total = 75 Min.

Math Learning Goals

- This is a one-day paper and pencil test that evaluates student learning for the remaining overall expectations and math processes.
- Students will apply their knowledge to generic situations, as well as real world contexts.
- Students will generate graphical and algebraic models from the data calculated in tables of value.

Materials

Unit 4 Written Evaluation

			Assessment Opportunities
Minds On…	**Whole Class → Discussion** Take-up questions from Home Activity or Further Classroom Consolidation from Day 7. Teacher may wish to supply an extra problem before distributing paper and pencil test. Distribute and introduce the paper and pencil test, bringing attention to the marking scheme and expectations of the test.		The use of CAS for the assessment is encouraged. Students are still required to show all their work including the steps provided from the handheld.
Action!	**Individual → Performance Task** The test will be completed individually. Students should be given 60 minutes to complete this task.		
Consolidate Debrief	**Individual → Collection of Materials** Collect tests and CAS handhelds		
Journal Reflection	**Home Activity or Further Classroom Consolidation** Journal Question: Based on the three methods for solving linear systems of equations, which did you find to be your favourite? Explain. Which was your least favourite method? Explain.		

Unit 4 Written Evaluation

Course Code: MFM 2P0
Date:
Pages(including cover page): 4
Total Marks: 29

Name:

Instructions:

1. Print your name on the test.
2. Read all instructions and questions carefully.
3. Take note of the marks allotted to each question.
4. Calculators (scientific and CAS) are allowed, but cannot be shared.

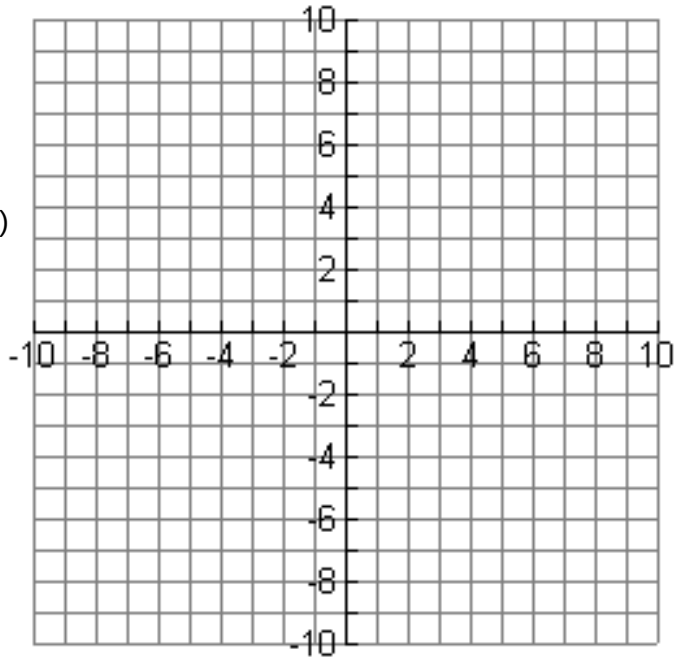
Evaluation:

Category	**Marks**	**Student Score**
Knowledge	15	
Application	9	
Communication	5	
Total:	29	

MFM 2P0 – UNIT 4 TEST

1. Solve the system by graphing the lines on the grid provided (A – 4 marks)

$y = x - 4$
$y = -2x + 5$



Point of Intersection: (K – 1 mark)

(__,__)

2. The solution to a system is more often called the _____
(K – 1 mark)

3. Solve by substitution and do the LS/RS checks: (K – 5 marks)

$-3x - y = -4$
$y = x$

4. Solve by elimination and do the LS/RS checks: (K – 5 marks)

$2x - 3y = 0$
$3x + 3y = 15$

5. In the linear system below identify which method would be easier (substitution, elimination or both) according to the rules discussed in class. Circle the appropriate method. **Do not solve** (K – 3 marks)

a) $y = 4x - 3$
$y = 2x + 3$

Sub/Elim

b) $2x - 3y = 8$
$y = -2x - 9$

Sub/Elim

c) $4x - 5y = -1$
$3x + 5y = 4$

Sub/Elim

6. Alicia goes to the pet store and purchases 3 goldfish, and 2 guppies for her aquarium. In total they cost $3.50. The next day she goes back for more and this time purchases 4 goldfish and 5 guppies and the cost is $7.00. How much does 1 goldfish cost? How much does one guppy cost?

Let x represent the cost of 1 goldfish
Let y represent the cost of 1 guppy

From the list below circle the **two** equations that match the scenario described above. **Do not solve the question**. (A – 2 marks)

a. $2x - 3y = 0$
b. $2x - 3y = 3.50$
c. $3x + 2y = 3.50$
d. $5x - 4y = 7$
e. $4x + 5y = 0$
f. $4x + 5y = 7$

7. Two bicycle rental shops are competing for business. Bob's Bicycles rents his bikes for $7 per day and an additional $2 per hour. Tony's Ten Speed Rentals advertises a flat fee of $15 per day.

Bob's Bicycles: $y = 2x + 7$
Tony's Ten Speed: $y = 15$

a) What is the point of intersection? (solve using the method of your choice)
(A – 3 marks)

b) What does the point of intersection represent in the context of the question?
(C – 2 marks)

c) Which rental shop has the best deal? Explain. (C – 3 marks)

Unit 4 Written Evaluation

Course Code: MFM 2P0
Date:
Pages(including cover page): 4
Total Marks: 29

Name: ***SOLUTIONS***

Instructions:

1. Print your name on the test.
2. Read all instructions and questions carefully.
3. Take note of the marks allotted to each question.
4. Calculators (scientific and CAS) are allowed, but cannot be shared.

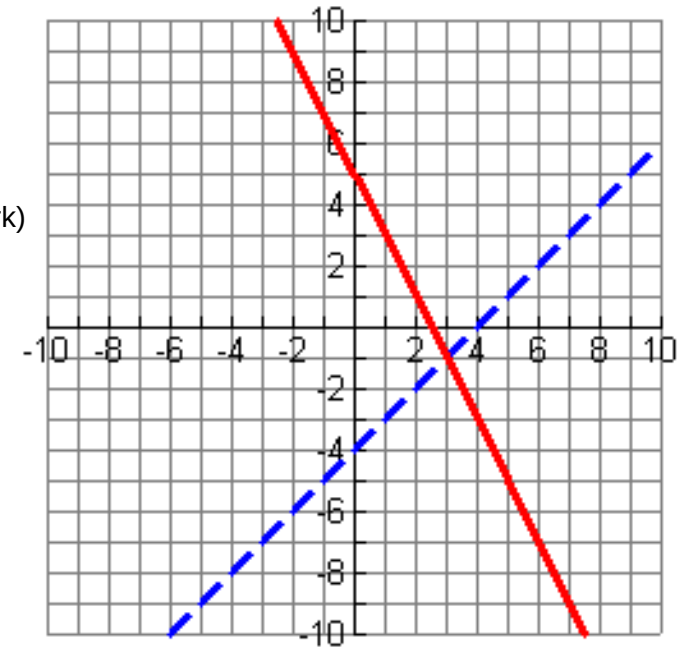
Evaluation:

Category	**Marks**	**Student Score**
Knowledge	15	
Application	9	
Communication	5	
Total:	29	

MFM 2P0 – UNIT 4 TEST - Solutions

1. Solve the system by graphing the lines on the grid provided (A – 4 marks)

$y = x - 4$
$y = -2x + 5$



Point of Intersection: (K – 1 mark)

(3 , -1)

2. The solution to a system is more often called the *point of intersection*
(K – 1 mark)

3. Solve by substitution and do the LS/RS checks: (K – 5 marks)

$-3x - y = -4$ Eq.1
$y = x$ Eq.2

Sub Eq. 2 into Eq. 1
$-3x - x = -4$
$-4x = -4$
Divide both sides by -4
x = 1
Sub x = -1 into Eq.1 or Eq. 2
y = x
y = 1

LS	RS
-3x-y -3(1)-1 -3-1 -4	-4

LS	RS
y 1	x 1

Therefore POI = (1, 1)

4. Solve by elimination and do the LS/RS checks: (K – 5 marks)

$2x-3y=0$ *Eq.1*

$3x+3y=15$ *Eq.2*

Add Eq.1 to Eq.2

$5x+0y=15$

Divide both sides by 5

x = 3

Sub x = 3 into Eq.1 or Eq.2

$2x-3y=0$

$2(3)-3y=0$

6 – 3y = 0

-3y = -6

Divide both sides by -3

y = 2

LS	RS
2x-3y 2(3)-3(2) 6-6 0	0

LS	RS
3x+3y 3(3)+3(2) 9+6 15	15

Therefore POI = (3, 2)

5. In the linear system below identify which method would be easier (substitution, elimination or both) according to the rules discussed in class. Circle the appropriate method. **Do not solve** (K – 3 marks)

a) $y=4x-3$
$y=2x+3$

Sub/Elim
BOTH

b) $2x-3y=8$
$y=-2x-9$

Sub/Elim
SUB

c) $4x-5y=-1$
$3x+5y=4$

Sub/Elim
ELIM

6. Alicia goes to the pet store and purchases 3 goldfish, and 2 guppies for her aquarium. In total they cost $3.50. The next day she goes back for more and this time purchases 4 goldfish and 5 guppies and the cost is $7.00. How much does 1 goldfish cost? How much does one guppy cost?

Let x represent the cost of 1 goldfish
Let y represent the cost of 1 guppy

From the list below circle the **two** equations that match the scenario described above. **Do not solve the question**. (A – 2 marks)

a. $2x-3y=0$
b. $2x-3y=3.50$
c. $3x+2y=3.50$ ←←←←
d. $5x-4y=7$
e. $4x+5y=0$
f. $4x+5y=7$ ←←←←←

7. Two bicycle rental shops are competing for business. Bob's Bicycles rents his bikes for $7 per day and an additional $2 per hour. Tony's Ten Speed Rentals advertises a flat fee of $15 per day.

Bob's Bicycles: $y = 2x + 7$
Tony's Ten Speed: $y = 15$

a) What is the point of intersection? (solve using the method of your choice)
(A – 3 marks)

Sub:
2x + 7 = 15
2x = 8
x =4
Sub x = 4 in y = 2x + 7
y = 2(4) + 7
y = 8 + 7
y = 15

Therefore POI = (4,15)

b) What does the point of intersection represent in the context of the question?
(C – 2 marks)

x represents the number of hours the bike is rented, therefore the POI means that the two companies cost the same, $15 dollars, when the bikes are rented for 4 hours. Otherwise one of the companies would be cheaper.

c) Which rental shop has the best deal? Explain (C – 3 marks).

It depends on how long you want the bikes for.
If you want the bikes for less than 4 hours, then Bob's Bicycles is cheaper.
If you want the bikes for more that 4 hours, then Tony's Ten Speed is cheaper.
They cost the same amount for exactly 4 hours.