Grade 9 Math *Unit 4: Test* -SAMPLE- Name Key

Part 1: Multiple Choice. **(7 marks)** ____ / 30 = ____ %

Place the letter of the correct response in the space provided on the right. Please use CAPITAL letters.

1. In the equation $M = 5a + 2$, what is the value of M when $a = 3$? 5(3)+2 15+2 17 1. C

(A) 7 (B) 10 (C) 17 (D) 30

2. The pattern in this table continues. Which equation below relates the number of sides, N, to the figure number, f ? 2. C

Figure , f	Number of sides , N
1	4
2	7
3	10
4	13

)3)3)3

(A) $N = 4f$ (B) $N = 3f$ (C) $N = 3f + 1$ (D) $N = 4f - 1$

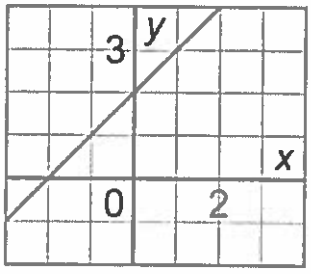
3. The Town Council is planning to hold a fundraiser auction. The profit in dollars is 10 times the number of people who attend, minus $350 for the cost of the stadium rental. Which equation relates the profit, P, to the number of people, n, who attend? 3. C

(A) $P = 10n + 350$ (B) $P = 350n + 10$ (C) $P = 10n - 350$ (D) $P = 350n - 10$

4. Which of the following equations represents a horizontal line? 4. B

(A) $x = 5$ (B) $y = 5$ (C) $x + 2y = 3$ (D) $y - x = 3$

5. Which equation describes the graph below? 5. C



m = 1

b = 2

y = mx + b

(A) $y = 2x - 2$ (B) $y = x$ (C) $y = x + 2$ (D) $y = 2x + 1$

6. Which of the following table of values represents a linear relation? 6. C

(A)

x	y
5	1
4	2
3	4
2	7
1	11

(B)

x	y
1	3
2	5
3	8
4	12
5	17

(C)

x	y
5	0
4	2
3	4
2	6
1	8

(D)

x	y
0	0
1	1
2	4
3	9
4	16

7. Estimating a value outside a set of data points is called ____. 7. A

(A) extrapolation (B) interpolation

(C) independent variable (D) dependent variable

Part 2: Long Answer Questions. **(23 marks)**

Answer all questions in the space provided. Show ALL working to receive FULL credit.

8. A Bus Company charges a base fee of $7.00 plus $2.50 per kilometer.

a) Write an equation for the fare in terms of the base cost and the cost per kilometer. Use 'F' for the fare and 'k' for the kilometers traveled. (2)

$F = 7 + 2.5k$

b) Determine the fare for a 20 kilometer trip. (2)

$F = 7 + 2.5(20)$

$= 7 + 50$

$= 57$

The fare is $57!

c) If a trip costs $22.00, how many kilometers were traveled? (3)

$22 = 7 + 2.5k$

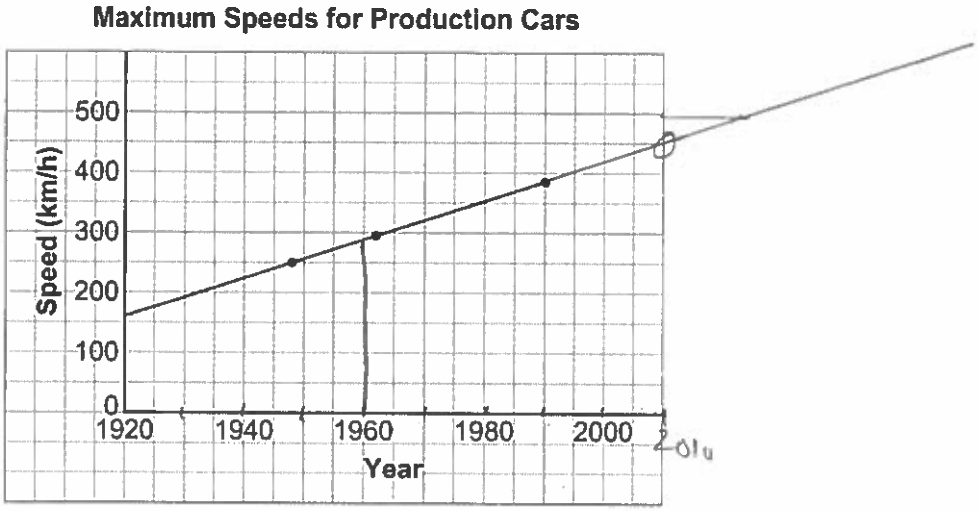
$-7 \quad -7$

$\frac{15}{2.5} = \frac{2.5k}{2.5}$

$6 = k$

Travelled 6 Km!

9. The graph below shows how the maximum speed for production cars has changed over time.



a) Estimate the maximum speed of a production car in 1960. (1)

290 Km/h

b) Is this interpolation or extrapolation? Explain. (1)

I used values in between known values on my graph.

c) Estimate the maximum speed of a production car in 2010. (1)

450 Km/h

c) Predict when the maximum speed will reach 500 km/h. (1)

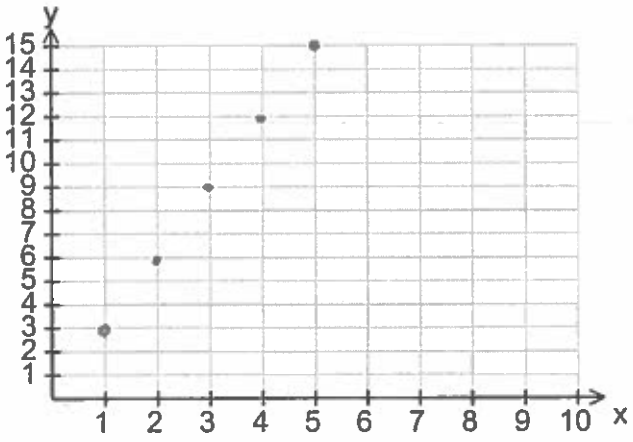
2020

10. The table of values shows the cost of renting DVDs at a video store.

Number of DVDs rented, d	Cost, C ($)
1	3.00
2	6.00
3	9.00
4	12.00
5	15.00

+3 +3 +3 +3

a) Graph the data on the grid provided. Be sure to label the graph. (3)



Cost (C)

Number of DVD's rented (d)

b) Does it make sense to join the points on the graph? Explain. (1)

no, you can't rent 1.5 DVDs! Data is discrete.

c) Is the relation linear? Explain. (1)

yes → graph contains points that lie on a line

→ table → as d increases by 1 each time C increases by 3 each time

11. Given the equation $2x + y = 3$

a) Make a table of values for $x = -1, 0, 1$ (3)

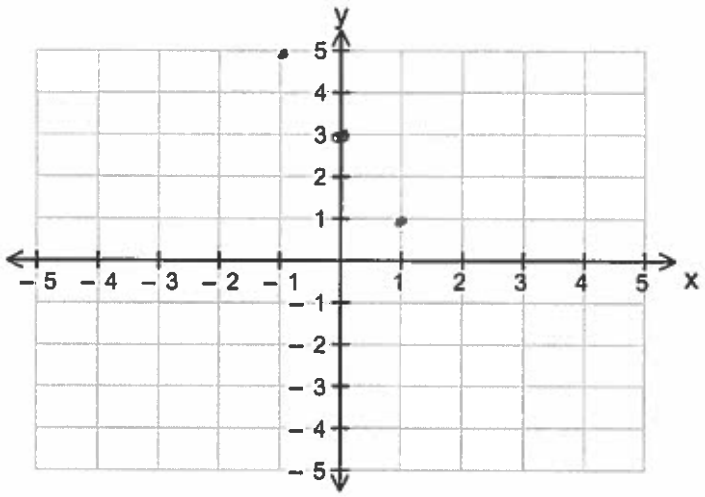
x	y
-1	5
0	3
1	1

$2(-1)+y=3$
$-2+y=3$
$+2 \quad +2$
$y=5$

$2(0)+y=3$
$0+y=3$
$y=3$

$2(1)+y=3$
$2+y=3$
$-2 \quad -2$
$y=1$

b) Graph the equation on the grid provided. (3)



c) Does it make sense to join the points? Explain. (1)

Yes - without a context the data is continuous!