EXAM REVIEW GRADE 9
Unit 4 – Linear Relations

Name: Answer Key Class: _____

1. In the equation $m = 3n - 2$, determine the value of m when $n = 5$.

$m = 3(5) - 2 = 15 - 2 = 13.$

2.

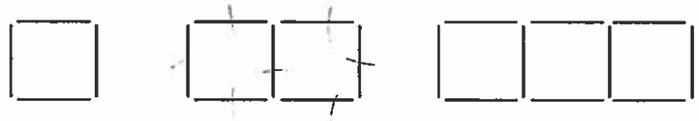


Diagram 1 Diagram 2 Diagram 3

d	t
1	4
2	7
3	10

a) Determine the expression that relates the number of toothpicks (t) to the diagram number (d).

$3d + 1$ is the number of toothpicks.

b) Given the diagrams shown, how many toothpicks would be used to construct Diagram 15?

$3(15) + 1$
$45 + 1$
46 toothpicks

3. Explain which table of values represents a linear relation?

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

X

x	0	1	2	3	4
y	3	1	-1	-3	-5

✓ linear constant decrease by 2.

x	0	1	2	3	4
y	2	5	8	11	14

✓ linear constant increase of 3

x	0	1	2	3	4
y	2	4	7	11	16

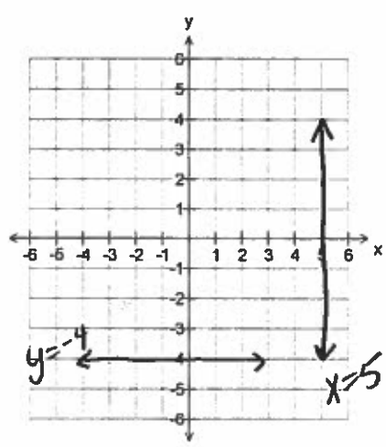
X

4. The fee to ride in King Taxi is $4 plus $1.25 for each km travelled. Determine the equation that relates the total cost C to the distance travelled d.

$4 + 1.25d = C$

5. Use the grid to draw the lines :

a) $y + 4 = 0$ $y = -4$ → horizontal line
b) $x = 5$ $x = 5$ → vertical line



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EXAM REVIEW GRADE 9
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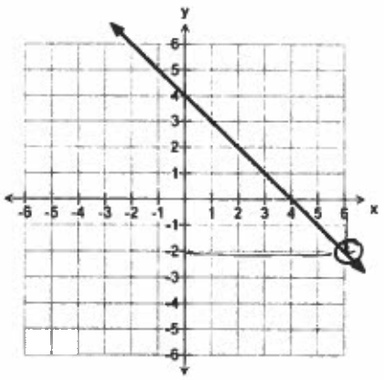
Name: _____ Class: _____

6. A stone is dropped from a bridge. Its speed increases due to the force of gravity. If the speed, **s** in m/s, after **t** second is given by the formula $s = 9.8t + 3$, what is the speed of the stone at 5 seconds?

$s = 9.8(5) + 3$
$S = 49 + 3$
$s = 52$ m/s.

7. The graph shown represents a linear relation. Determine the value of y when x = 6.



(6, −2)
↑
y is −2

8. Complete each table of values.

a) $y = 2x + 4$

X	Y
-1	2
0	4
1	6
2	8

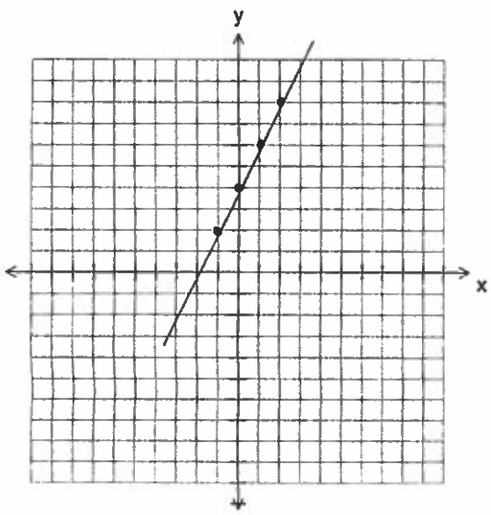
$2(-1) + 4$
$-2 + 4 = 2$

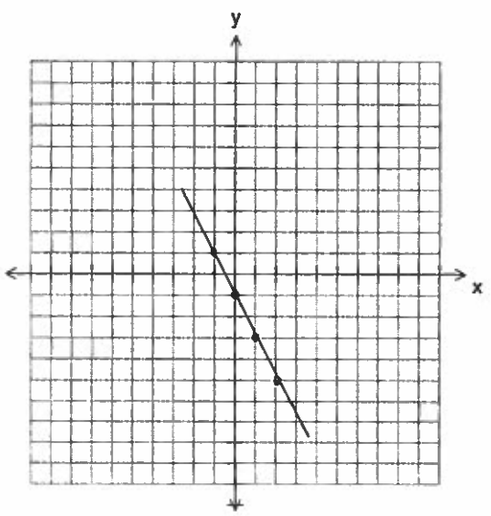
b) $2x + y = -1$

X	Y
-1	1
0	-1
1	-3
2	-5

$y = -1 - 2x$
$y = -1 - 2(+1)$
$= -1 + 2 = 1$
$y = -1 - 2 = -3$

9. Graph your equations above on the grids provided:





10. What value of x will make y = −32 for the equation $y = 4x - 12$?

$-32 = 4x - 12$
$+12 \qquad +12$

$\frac{-20}{4} = \frac{4x}{4}$ $\qquad x = -5$