

10MATH

January Exam Review Practice - Chapter 3

Part A: Quadratic Skills

NAME:

1. Find the roots of each of the following quadratics

a) $x^2 + 20x + 64 = 0$
 $(x+4)(x+16) = 0$

$\therefore x = -4, -16$

b) $x^2 - 81 = 0$
 $(x+9)(x-9) = 0$

$\therefore x = -9, 9$

c) $x^2 - 9x = 36$
 $x^2 - 9x - 36 = 0$
 $(x-12)(x+3) = 0$

$\therefore x = -3, 12$

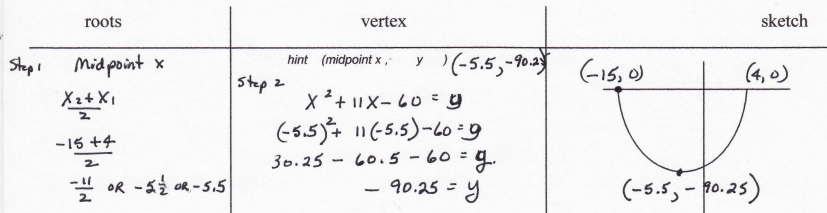
2. A deep sea diver plunged into the water and followed a path illustrated by $x^2 + 11x - 60 = 0$.

i) at point did he enter the water and at what point did he surface? (find the roots)

ii) What are the coordinates of the deepest point that the diver was able to reach? (x, y)

iii) sketch the data.

$x^2 + 11x - 60 = 0$
 $(x-4)(x+15) = 0$
 $x-4=0 \quad x+15=0$
 $x=4 \quad x=-15$



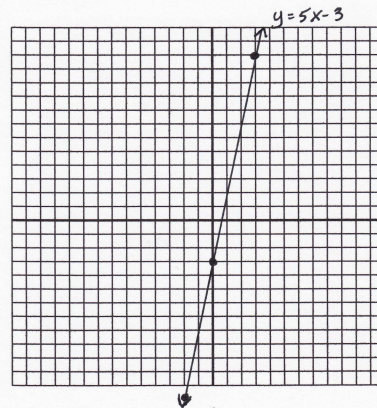
COORDINATE GEOMETRY

3. Complete the table of values for

$y = 5x - 3$

	x	y
a)	-2	-13
b)	0	-3
c)	3	12

d) Graph the line



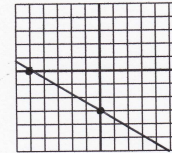
e) Domain $\{x \mid -2 \leq x \leq 3; x \in \mathbb{R}\}$

f) Range $\{y \mid -13 \leq y \leq 12; y \in \mathbb{R}\}$

4. Determine the intercepts for each of the following and graph each line

a) $3x + 5y = -15$

x	y
-5	0
0	-3

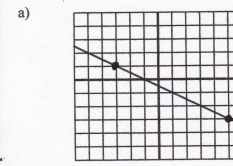


b) $-7x + 14y = -28$

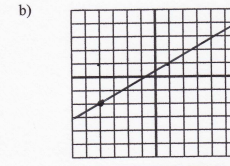
x	y
4	0
0	-2



5. Find the slope for each line given below



$m = \frac{-2}{4} = -\frac{1}{2}$

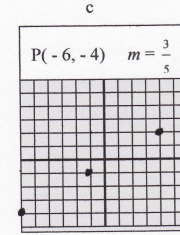
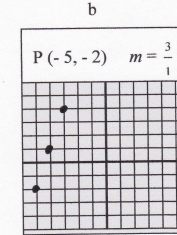
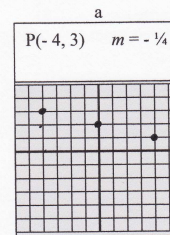


$m = \frac{3}{5}$

c) $P_1(-24, -18)$
 $P_2(30, 44)$
 $m = \frac{y_2 - y_1}{x_2 - x_1}$
 $m = \frac{44 - (-18)}{30 - (-24)}$

$m = \frac{62}{54} = \frac{31}{27}$

6. Given a point and the slope - plot the next 2 points on the graph



7. a) Find the midpoint (a sketch might be helpful)

$(4, -3)$ and $(10, -41)$
 $\left(\frac{x_2+x_1}{2}, \frac{y_2+y_1}{2}\right)$
 $\frac{4+10}{2}; \frac{-3-41}{2}$

$(7, -22)$

b) Find the other endpoint if

the midpoint is $(20, 15)$ and the other endpoint is $(4, -10)$

$(26, 40)$

8. Find the length of the line segment \overline{AB} if $A(4, -3)$ $B(-6, 21)$

$AP_2 = \sqrt{(x_2-x_1)^2 + (y_2-y_1)^2}$
 $\sqrt{(4-(-6))^2 + (-3-21)^2}$
 $\sqrt{10^2 + 24^2}$
 $\sqrt{100 + 576}$
 $AP_2 = \sqrt{676}$ OR 26

9. If the slope is $\frac{2}{3}$, and the y intercept is -7 write the equation of the line

$y = mx + b$
 $y = \frac{2}{3}x - 7$