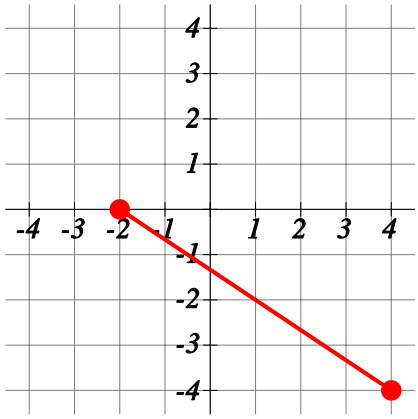
4. Coordinate Geometry

Name:	Class:	Date:

Mark	/ 20	%

1) Find the mid-point of the following line segment. [1]



2) Find the mid-point of the following two points [1]

(8,0) and (-9,3)

3) The line DE is a diameter of a circle, where D and E are (-2,10) and (10,6) respectively. Find the coordinates of the centre of the circle.

[1]

4) The line RS is a diameter of a circle, where R and S are (6,-9) and (2,11) respectively. Find the coordinates of the centre of the circle and state whether the line $y = -5x+19$ passes through it.

[1]

5) The line RS is a diameter of the circle centre (-8, -6). Given R is (-12,-13), find the coordinates of S. [1]

6) The line XY is a diameter of a circle centre C, where X and Y are (2,-5) and (6,-7) respectively. The line l passes through C and is perpendicular to XY. Find the equation of l.

[1]

7) The line XY is a diameter of the circle centre (2,0). The line l passes through Y and is perpendicular to XY. Given that X is (11,2), find the equation of l. Write your answer in the form $ax + by + c = 0$, where a, b and c are integers.

[1]

8) The line PQ is a chord of the circle centre C, where P and Q are (7,8) and (3,12) respectively. The line l is perpendicular to PQ and bisects it. Find the equation of l.

[1]

9) The lines DE and FG are chords of the circle. The line $y = 4x+3$ is the perpendicular bisector of DE. The line $y = 6x+17$ is the perpendicular bisector of FG. Find the coordinates of the centre of the circle.

[1]

10) Find the distance between the following points [1]

(-6,12) and (2,13)

11) The point (0,2) lies on the circle centre (-7,1). Find the radius of the circle. [1]

12) The line RS is a diameter of a circle, where R and S are (-11,-1) and (11,-13) respectively. Find the coordinates of the centre and the radius of the circle.

[1]

13) Write down the equation of the circle [1]

centre (-8,14) and radius $2\sqrt{7}$

14) Find the centre and the radius of the circle [2]

a) $(x + 7)^2 + (y + 9)^2 = 25$

b) $x^2 + y^2 + 18x - 2y + 57 = 0$

15) Does the following circle pass through the given point [1]

$(x + 2)^2 + y^2 = 147, \quad (7, -8)$

16) The point $(-4, 5)$ lies on the circle centre $(-7, 3)$. Find the equation of the circle. [1]

17) The circle $(x-2)^2 + (y+2)^2 = 40$ meets the x-axis at $(d, 0)$ and the y-axis at $(0, e)$. Find the possible values of d and e.

[1]

18) The line $y = x - 10$ meets the circle $(x+8)^2 + (y$ at P and Q. Find the coordinates of P and Q. [1]

19) Find the point of intersection of the tangent $y = -x - 9$ to the circle $(x-1)^2 + (y-2)^2 = 72$. [1]

Solutions for the assessment 4. Coordinate Geometry

1) (1, -2)

2) (-0.5, 1.5)

3) The centre of the circle is (4, 8)

4) The centre of the circle is (4, 1) and the line does not pass through the centre.

5) (-4,1)

6) The equation of l is $y = 2x - 14$

7) The equation of l is $9x + 2y + 67 = 0$

8) The equation of l is $y = x + 5$

9) The centre of the circle is (-7, -25)

10) 8.06 or $\sqrt{65}$

11) 7.07 or $5\sqrt{2}$

12) The centre is (0, -7) and the radius is 12.5 or $\sqrt{157}$

13) The equation of the circle is $(x + 8)^2 + (y - 14)^2 = 28$

14) a) The centre is (-7, -9) and the radius is 5

b) The centre is (-9, 1) and the radius is 5

15) No

16) $(x - 7)^2 + (y + 3)^2 = 185$

17) $d = 8$ or $d = -4$ and $e = 4$ or $e = -8$

18) The coordinates of P and Q are (2, -8) and (0, -10)

19) The point of intersection is (-5, -4)