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1. Find the exact distance between each pair of points:
a) $(4,-1)$ and $(1,3)$
b) $(2,0)$ and $(4,-5)$
2. Write an equation for the circle with centre $(0,0)$ and given radius:
a) radius $=3$
b) radius $=7$
3. Determine the exact radius of each circle:
a) $\mathrm{x}^{2}+\mathrm{y}^{2}=100$
b) $x^{2}+y^{2}=15$
4. Determine the coordinates of the midpoint of the line segment with endpoints $(-2,-5)$ and $(-8,3)$
5. For the line segment $D E$, one endpoint is $D(3,1)$ and the midpoint is $M(0,-4)$. Find the coordinates of endpoint $E$
6. The vertices of a triangle are $R(3,0), S(-1,3)$, and $T(0,-2)$.
a) Classify the triangle by side length.
b) Find the perimeter of the triangle to the nearest tenth.
7. Quadriateral RSTU has vertices $R(3,2), S(0,4), T(-2,1)$ and $U(1,-1)$. Verify that:
a) quadrilateral RSTU is a square.
b) the diagonals of quadrilateral RSTU perpendicularly bisect each other and are equal in length.
8. Determine the equation of the right bisector of the line segment joining $E(2,6)$ and $F(4,-2)$. Put the equation in standard form.
9. A line segment has endpoints $K(-6,5)$ and $L(2,1)$.
a) Plot the points and graph the line segment.
b) Find the length of the segment.
c) Find the slope of the segment.
d) State the co-ordinates of the midpoint.

10. Determine the equation of the line passing through $K(-6,5)$ and $L(2,1)$ in standard form.
11. State the equation of a circle with centre $(0,0)$ and radius 7 .
12. Determine the equation of the perpendicular bisector of the line through the points $Q(5,8)$ and $R(-1,2)$, in standard form.
13. A triangle has vertices $A(-1,3), B(1,7)$, and $C(5,5)$.
a) Sketch and properly label the triangle on the grid provided.
b) Verify that $\triangle A B C$ is a right triangle.
c) Determine whether the triangle is scalene, isosceles, or equilateral.
d) Using the grid on the right, find a point D so that ABCD is a square.
e) Verify that ABCD is a square.

Answers:
14. a) 5 b) $\sqrt{ } 29$
15. a) $x^{2}+y^{2}=9$ b) $x^{2}+y^{2}=49$
16. a) 10 b) $\sqrt{15}$ 4. $(-5,-1)$
17. $(-3,-9)$
18. a) scalene, b)13.7 $\quad$ 7. a) opposite sides are parallel and adjacent sides are perpendicular, all sides are the same length
19. b) slopes are perpendicular and have same length
8) $x-4 y+5=0 \quad$ 9. b) 8.94, c) $-1 / 2$, d) $(-2,3) \quad$ 10. $x+2 y-4=0 \quad$ 11. $x^{2}+y^{2}=49 \quad 12 . x+y-7=0$
13. b) show that $A B$ is perpendicular to $B C, c$ ) isosceles, $d$ ) (3,1), e) opposite sides are parallel and adjacent sides are perpendicular, all sides are the same length
