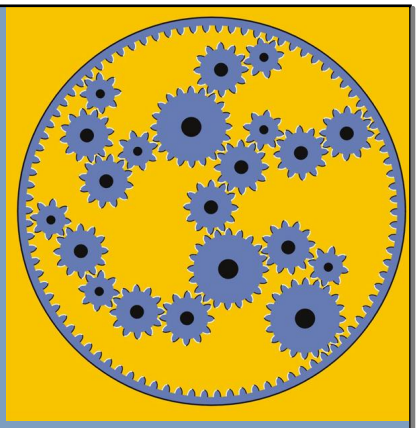
Intro to Graphing



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VG Pg. 70 1. _____ 2. _____ 3. _____ 4. _____ 5. _____
6. _____ 7. _____ 8. _____ 9. _____ 10. _____

Sep 8-5:02 PM

Given points: $A(x_1,y_1)$ & $B(x_2,y_2)$

Midpoint Formula: $\left(\frac{x_1+x_2}{2}, \frac{y_1+y_2}{2}\right)$

Sep 8-5:03 PM

Find the midpoint for the segment between the given points:

1. (6, -1) and (9, 5) (x_1,y_1) (x_2,y_2)

$\therefore \left(\frac{6+9}{2}, \frac{-1+5}{2}\right)$

$\therefore \left(\frac{15}{2}, 2\right)$

2. (-1/2, 3) & (5/2, 3)

$\therefore \left(\frac{-\frac{1}{2}+\frac{5}{2}}{2}, \frac{3+3}{2}\right)$

$= (1, 3)$

Sep 8-5:03 PM

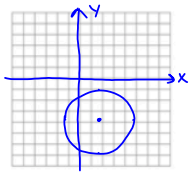
Standard Form of the Equation of a Circle with center (h, k) and radius r:

$(x-h)^2+(y-k)^2=r^2$

3. Graph the circle: $(x-2)^2+(y+4)^2=9$

Center: (h,k): $(2,-4)$ (opposite)

Radius: r: 3 $\sqrt{9}$



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4. Write the equation of a circle with endpoints (1, 4) and (3, 6). Express the equation in standard form. (x_1,y_1) (x_1,y_1)

$(x-h)^2+(y-k)^2=r^2$

① Find the center by finding the midpoint

$\left(\frac{1+3}{2}, \frac{4+6}{2}\right)=(2,5)$

② Find r^2 by substitution

$(1-2)^2+(4-5)^2=r^2$

$(-1)^2+(-1)^2=r^2$

$2=r^2$

③ $(x-2)^2+(y-5)^2=2$

Sep 7-10:07 AM

5. Write the equation of a circle with endpoints (2, 3) and (4, -7). Express the equation in standard form.

① $\left(\frac{2+4}{2}, \frac{3+-7}{2}\right) = (3, -2)$

② Pt (2, 3)

$(2-3)^2+(3-2)^2 = r^2$

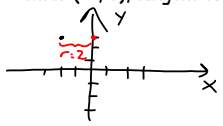
$(-1)^2+(5)^2 = r^2$

$r^2 = 26$

③ $(x-3)^2+(y+2)^2 = 26$

Aug 21-6:37 PM

6. Center (-2, 3), tangent to the y-axis.



$(x+2)^2+(y-3)^2 = 4 \leftarrow (2^2)$

Aug 21-6:37 PM

Sep 5-6:59 AM