

Use separate graph paper for 1- 4

1. Rewrite each equation of a circle in standard form, if necessary. State the center and radius and graph the circles on the same axes. Use separate graph paper.

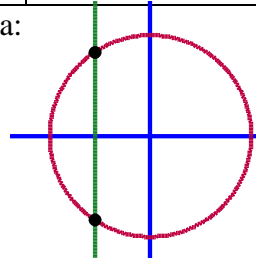
- a)  $x^2 + y^2 = 1$
- b)  $x^2 + y^2 - 10x + 6y = -18$
- c)  $x^2 + y^2 - 2x = 24$
- d)  $x^2 + y^2 - 4y = 0$

3. **Challenge:** Find the equation of the circle whose diameter has endpoints  $(0, -3)$  and  $(6, 5)$ . Graph the points to help find the center. Use the distance formula or the Pythagorean Theorem to find the radius.

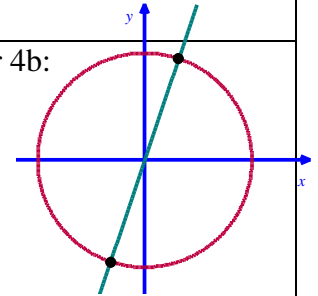
4. Solve the system of equation by substitution. Graphs are shown here.

- a)  $\begin{cases} x^2 + y^2 = 13 \\ x = -2 \end{cases}$
- b)  $\begin{cases} x^2 + y^2 = 40 \\ y = 3x \end{cases}$

Graph for 4a:

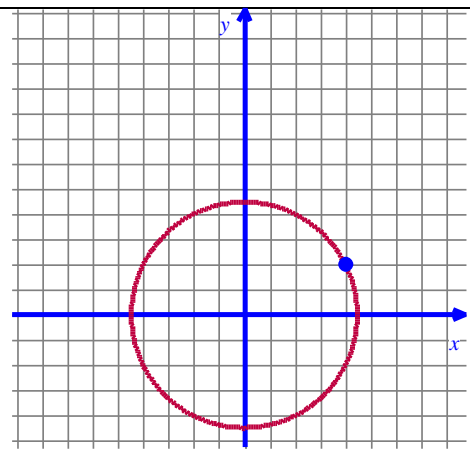


Graph for 4b:



5. The circle  $x^2 + y^2 = 20$  is shown at right. It passes through the point  $(4, 2)$ .

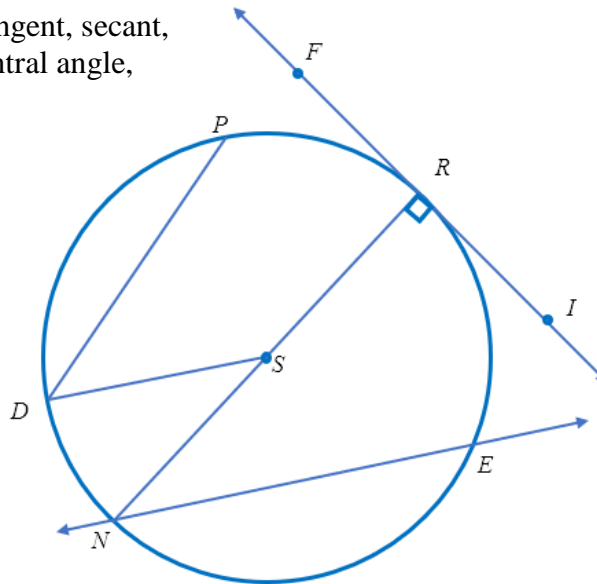
- a) Draw the radius to  $(4, 2)$ .
- b) What is the slope of the radius?
- c) What is the slope of the tangent line at  $(4, 2)$ ? (remember it is perpendicular to the radius)
- d) Find the equation of the line tangent to the circle at  $(4, 2)$ .



6. Name each of the following in  $\odot S$ .

**Choices:** radius, chord, diameter, tangent, secant, minor arc, major arc, semicircle, central angle, inscribed angle

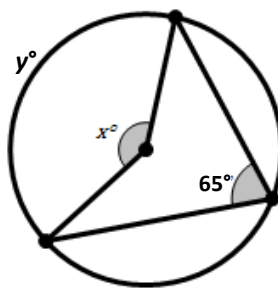
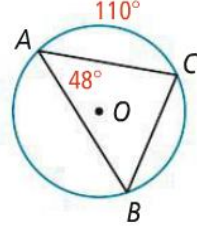
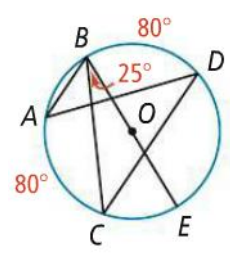
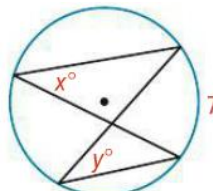
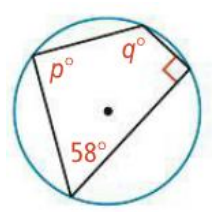
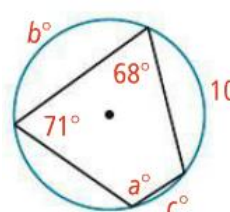
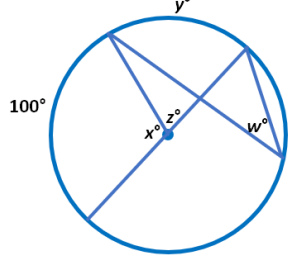
- a)  $\angle ENR$
- b)  $\overline{FI}$
- c)  $\overline{RN}$
- d)  $\overline{SD}$
- e)  $\overline{RDN}$
- f)  $\angle DSN$
- g)  $\overline{EN}$
- h)  $\overline{ED}$
- i)  $\overline{DP}$
- j)  $\overline{DER}$



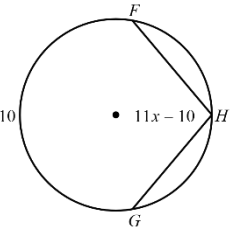
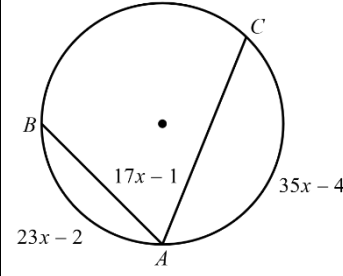
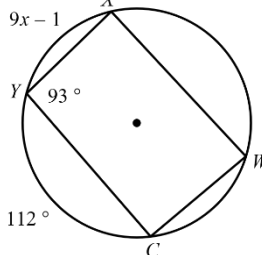
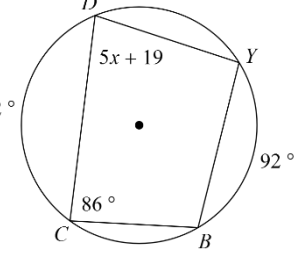
7. If a central angle of a circle is  $50^\circ$  then the arc that it intercepts is \_\_\_\_\_ $^\circ$ .

8. If an inscribed angle of a circle is  $50^\circ$  then the arc that it intercepts is \_\_\_\_\_ $^\circ$ .

Find the indicated value.

<p>9.</p> 	<p>10.</p> <p>a. <math>m\widehat{BC}</math>          b. <math>m\angle B</math>          c. <math>m\angle C</math>          d. <math>m\widehat{AB}</math></p> 	<p>11.</p> <p>a. <math>m\angle A</math>          b. <math>m\widehat{CE}</math>          c. <math>m\angle C</math>          d. <math>m\angle D</math>          e. <math>m\angle ABE</math></p> 	
<p>12.</p> 	<p>13.</p> 	<p>14.</p> 	<p>15.</p> 

Write and solve an equation to find the variable.

<p>16.</p> 	<p>17.</p> 	<p>18.</p> 	<p>19.</p> 
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Factor each expression:

<p>20. <math>x^2 + 6x + 9</math></p>	<p>21. <math>x^2 - 9</math></p>	<p>22. <math>x^2 + 3x</math></p>	<p>23. <math>3x + 9</math></p>
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Simplify each expression:

<p>24. <math>\frac{x^2 + 6x + 9}{x^2 - 9}</math></p>	<p>25. <math>\frac{x^2 - 9}{x^2 + 3x}</math></p>	<p>26. <math>\frac{x^2 + 3x}{3x + 9}</math></p>	<p>27. <math>\frac{3x + 9}{x^2 - 9}</math></p>
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