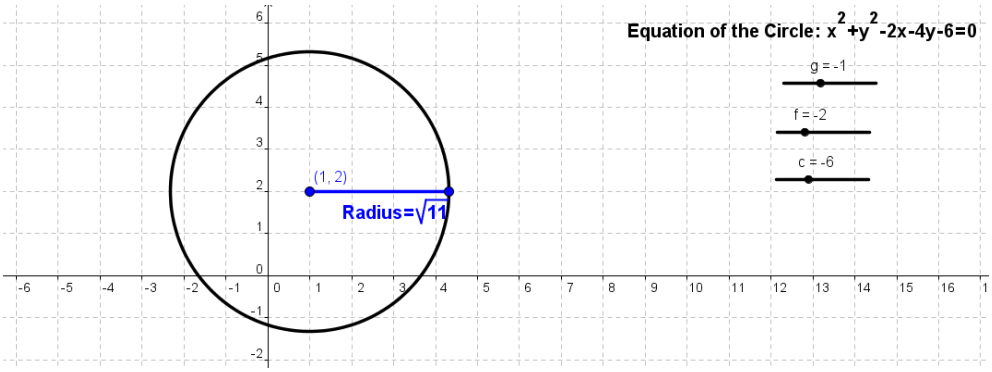
Student Activity on Circles with Centre (-g,-f)

Use in connection with the interactive file "Circles with Centre (-g,-f)" on the Student's CD.

To explore the properties of circles with centre (-g,-f)



The slider called "Step" is used to change the information on the screen.

To start set the slider to "Step = 1"

1. Adjust the sliders and watch the size, equation and location of the circle change.

2. As g increases, i.e. moves from -5 to 5, what happens the circle?_____

3. As g decreases, i.e. moves from 5 to -5, what happens the circle?_____

4. As f increases, i.e. moves from -5 to 5, what happens the circle?_____

5. As f decreases, i.e. moves from 5 to -5, what happens the circle?_____

6. Adjust the sliders and see if you can come up with a relationship between the x-coordinate of the centre and any part of the equation of the circle._____

_____

_____

7. Adjust the sliders and see if you can come up with a relationship between the y-coordinate of the centre and any part of the equation of the circle._____

_____

_____

8. Describe how you would work out the centre of the circle $x^2+y^2-6x+4y-5=0$.

_____

_____

_____

9. Adjust g or f so that the centre of the circle is on the x-axis. What do you notice about the equation?_____

10. Adjust g or f so that the centre of the circle is on the y-axis. What do you notice about the equation?_____

11. When the centre of the circle is on the x-axis what happens the equation of the circle?_____

12. When the centre of the circle is on the y-axis what happens the equation of the circle?_____

13. Under what circumstances would a circle have an equation of $x^2+y^2-9=0$?_____

_____

14. Under what circumstances would a circle have an equation with no "x" term and a "y" term of 4y?_____

_____

15. Make c=0. Which piece of the equation is influenced?_____

16. Keeping c=0, adjust the sliders g and f and see if you can see any relationship between g, f and the radius of the circle? Finish off the following sentence: When c=0 the radius of the circle is_____

_____

17. Make c=0, g=2, and f=3. What is the radius?_____

18. Make c=1, g=2 and f=3. What is the radius?_____

19. Make c=2, g=2 and f=3. What is the radius?_____

20. Make c=–1 , g=2 and f=3. What is the radius?_____

21. Can you work out the formula for the radius in terms of g, f and c?_____

22. Can you find a set of circumstances when you adjust g, f and c that the circle is no longer there i.e. no circle is drawn?_____

_____

23. Substitute the numbers you found in the previous answer into your formula for finding the radius from question 21. What do you get for the radius?_____

_____

24. Would it be possible to have a radius equal to this?_____

25. Describe how to find the equation of the circle with centre (2, 4) and radius 3_____

_____

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