

Chapter 4 Gallery of graphs: **Assignment**

Student name:

1 Sketch the graphs of each of the following. Label axis intercepts and asymptotes:

a $y = \frac{2}{x}$

b $y = \frac{2}{x-1}$

c $y = \frac{2}{x} + 1$

d $y = \frac{2}{x+1} - 1$

2 Sketch the graphs of each of the following. Label axis intercepts and asymptotes:

a $y = \frac{2}{(x-1)^2}$

b $y = \frac{2}{(x+1)^2} - 1$

3 Sketch the graphs of each of the following:

a $y = -\sqrt{x+2}$

b $y = \sqrt{2x+1}$

c $y = \sqrt{x-2} - 2$

4 State the coordinates of the centre and the length of the radius of the circle with the given equation:

a $(x-4)^2 + (y+2)^2 = 16$

b $x^2 + (y-2)^2 = 7$

c $x^2 + y^2 - 6x + 8y = 0$

5 Find the axis intercepts of the circle with equation $(x-2)^2 + (y+3)^2 = 45$.

6 Find the equation of the tangent to the circle with equation $x^2 + y^2 = 8$ at the point:

a (2, 2) **b** (-2, 2)

c (-2, -2) **d** (2, -2)

7 a Find the coordinates of the points of intersection of the line with equation $y = x$ and the circle $x^2 + y^2 = 1$.

b Find the y -coordinates of the points of intersection of the curve with equation $y = x^2$ and the circle $x^2 + y^2 = 1$.

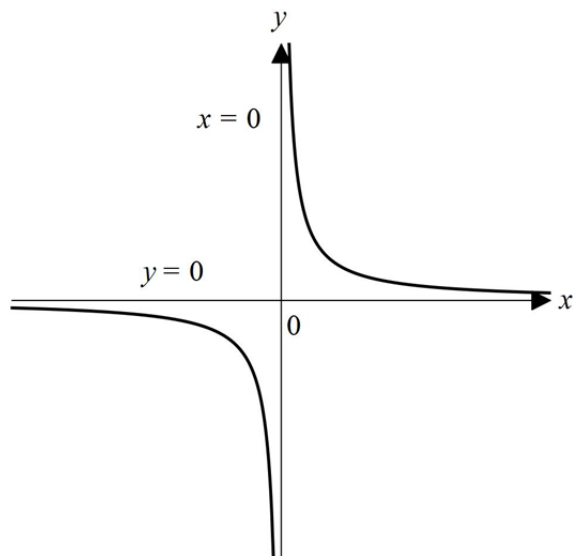
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- c Find the x -coordinates of the points of intersection of the curve with equation $y = \sqrt{x}$ and the circle $x^2 + y^2 = 1$.

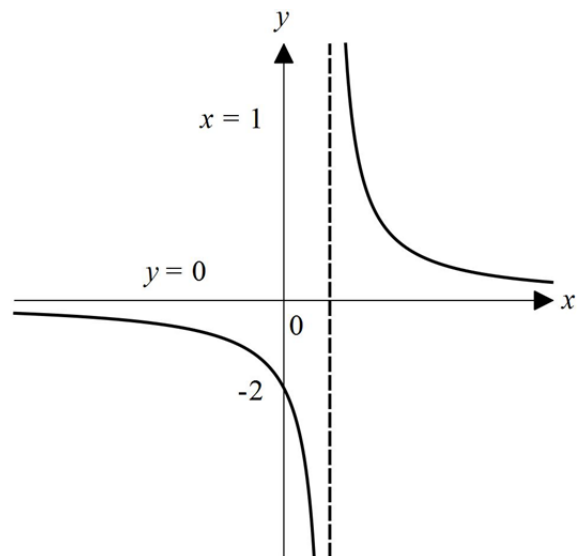
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Answers

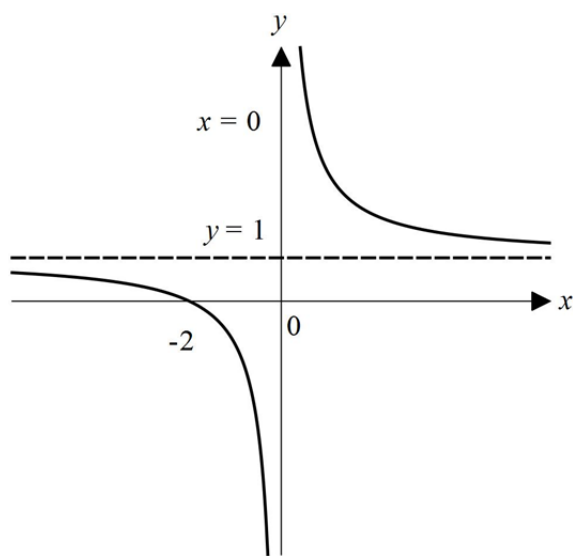
1 a



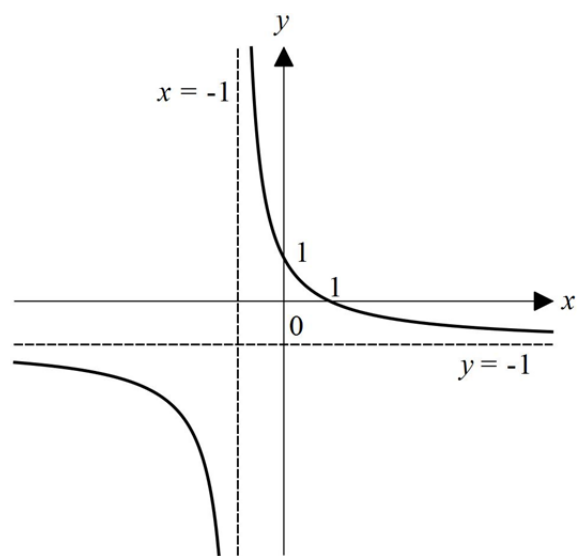
b



c

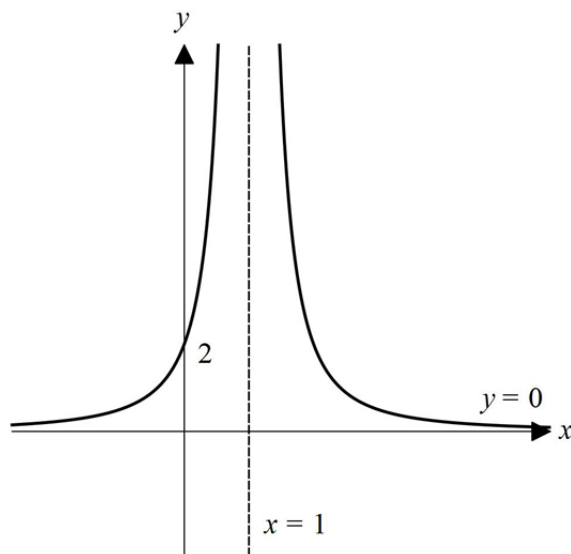


d

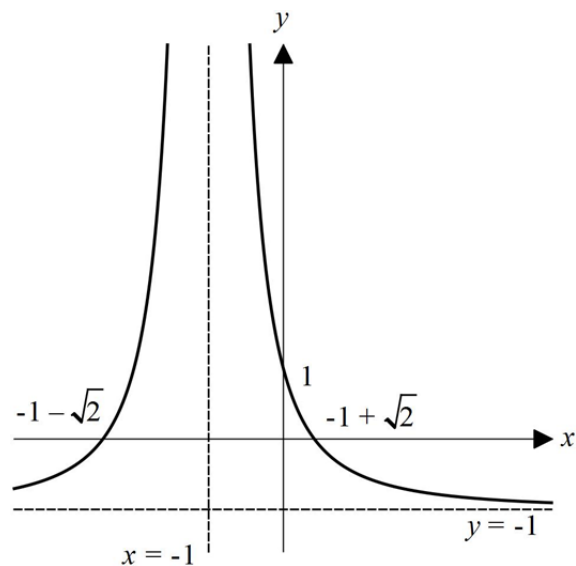


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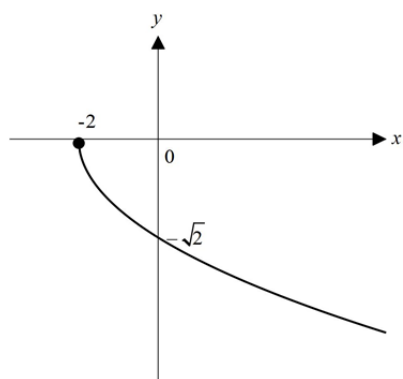
2 a



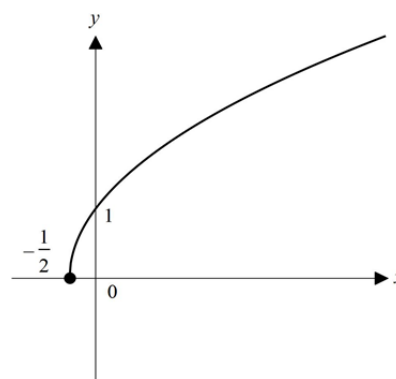
b



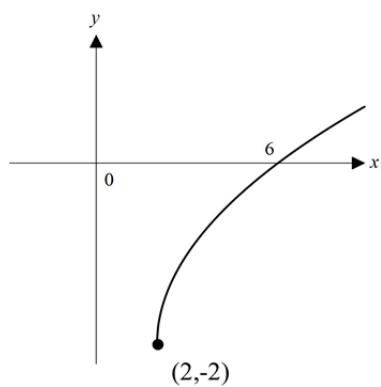
3 a



b



c



4 a $(4, -2), 4$ b $(0, 2), \sqrt{7}$ c $(3, -4), 5$

5 $y = -3 \pm \sqrt{41}, x = 8$ or $x = -4$

6 a $y = -x + 4$ b $y = x + 4$

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c $y = -x - 4$ **d** $y = x - 4$

7 a $\left(\frac{1}{\sqrt{2}}, \frac{1}{\sqrt{2}}\right), \left(-\frac{1}{\sqrt{2}}, -\frac{1}{\sqrt{2}}\right)$

b $y = \frac{\sqrt{5}-1}{2}$ **c** $x = \frac{\sqrt{5}-1}{2}$