

1. a.  $(0,5); y=-5$       b.  $(\frac{1}{8},0); x=-\frac{1}{8}$       c.  $(0,\frac{1}{36}); y=-\frac{1}{36}$   
 d.  $(7,0); x=-7$       e.  $(0,-2); y=2$       f.  $(8,0); x=-8$   
 g.  $(0,-\frac{3}{4}); y=-\frac{5}{4}$       h.  $(-\frac{4}{5},\frac{3}{2}); x=\frac{17}{10}$       i.  $(-1,\frac{61}{20}); y=\frac{11}{20}$
2. a.  $v(\pm 15,0), f(\pm 12,0)$       b.  $v(0,\pm 25), f(0,\pm 20)$       c.  $v(\pm 10,0), f(\pm \sqrt{91},0)$   
 d.  $v(0,\pm 9), f(0,\pm \sqrt{56})$       e.  $v(0,\pm 13), f(0,\pm \sqrt{69})$       f.  $v(\pm 13,0), f(\pm 12,0)$   
 g.  $v(-2,-2), (4,-2), f(1\pm\sqrt{5},-2)$       h.  $v(26,0), (0,0), f(13\pm 2\sqrt{39},0)$   
 i.  $v(-3,3), (-3,11), f(-3,5), (-3,9)$
3. a.  $(\pm 25,0) y=\pm \frac{4}{3}x$       b.  $(0,\pm 15) y=\pm \frac{4}{3}x$       c.  $(\pm \sqrt{17},0) y=\pm 4x$   
 d.  $(\pm \sqrt{26},0) y=\pm 5x$       e.  $(\pm 6,0) y=\pm x$       f.  $(0,\pm \sqrt{29}) y=\pm \frac{5}{2}x$   
 g.  $(1\pm \sqrt{13},-4) y=-4\pm \frac{2}{3}(x-1)$       h.  $(0,1\pm \sqrt{8}) 7y=7\pm x$       i.  $(-2\pm 3\sqrt{\frac{29}{10}},\frac{3}{2}) y=\frac{3}{2}\pm \sqrt{5}(x+2)$
4. a.  $\frac{x^2}{36}+\frac{y^2}{16}=1$       b.  $\frac{x^2}{81}+\frac{y^2}{9}=1$       c.  $\frac{x^2}{56}+\frac{y^2}{81}=1$   
 d.  $\frac{x^2}{49}+\frac{y^2}{40}=1$       e.  $\frac{x^2}{4}+y^2=1$       f.  $\frac{x^2}{36}+\frac{y^2}{32}=1$   
 g.  $\frac{(x-2)^2}{16}+\frac{(y-3)^2}{25}=1$       h.  $(x+1)^2+\frac{(y-2)^2}{4}=1$       i.  $\frac{(x-2)^2}{6.25}+\frac{(y-1.2)^2}{4}=1$
5. a.  $\frac{x^2}{25}-\frac{y^2}{75}=1$       b.  $\frac{y^2}{100}-\frac{x^2}{144}=1$       c.  $\frac{x^2}{144}-\frac{y^2}{25}=1$   
 d.  $\frac{y^2}{81}-\frac{x^2}{144}=1$       e.  $\frac{y^2}{16}-\frac{x^2}{48}=1$       f.  $\frac{(x-9)^2}{16}-\frac{(y+6)^2}{9}=1$   
 g.  $(x+1)^2-(y-1)^2=1$       h.  $\frac{(x-2)^2}{9}-\frac{(y+1)^2}{4}=1$
6. a.  $\frac{1}{2}\sqrt{3}$       b.  $\frac{1}{2}\sqrt{3}$       c.  $\frac{1}{12}\sqrt{143}$
7. a.  $\sqrt{35}y=\pm 36$       b.  $\sqrt{15}x=\pm 16$       c.  $\sqrt{3}x=\pm 20$
8. a.  $\frac{13}{12}$       b.  $\frac{1}{4}\sqrt{65}$       c.  $\frac{1}{6}\sqrt{85}$
9. a.  $y=-5\pm \frac{9}{\sqrt{13}}$       b.  $13x=\pm 144$       c.  $x=4\pm \frac{64}{\sqrt{73}}$

10. a. hyperbola;  $c(6,7)$ ;  $f(6,7 \pm \sqrt{32})$ ;  $y = 7 \pm (x-6)$

b. hyperbola;  $c(5,4)$ ;  $f(5 \pm 14\sqrt{2}, 4)$ ;  $y = 4 \pm \sqrt{7}(x-5)$

c. ellipse;  $c(-1,5)$ ;  $f(-5,5), (3,5)$ ;  $v(-6,5), (4,5)$

d. ellipse;  $c(-2,-6)$ ;  $f(-2,3), (-2,9)$ ;  $v(-2,1), (-2,11)$

e. ellipse;  $c(-6,5)$ ;  $f(-3,5), (-9,5)$ ;  $v(-1,5), (-11,5)$

f. circle;  $(7,-2)$ ;  $r = 5$

g. circle;  $(7,5)$ ;  $r = 7$

h. parabola;  $(-5,5)$ ;  $y = 3$

11. a.  $r = \frac{20}{1+4\cos\theta}$

b.  $r = \frac{10}{4+\sin\theta}$

c.  $r = \frac{10}{1-2\sin\theta}$

d.  $r = \frac{7}{2-\cos\theta}$

e.  $r = \frac{15}{1+5\sin\theta}$

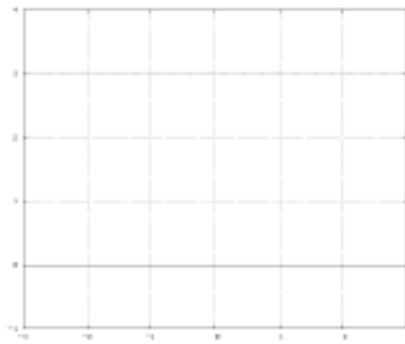
f.  $r = \frac{9}{4+\cos\theta}$

12.

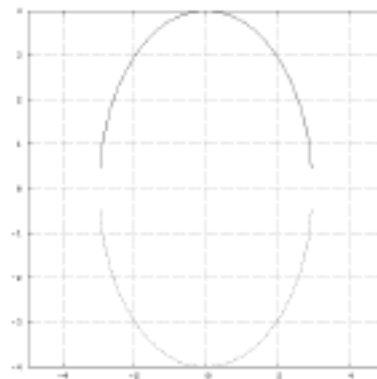
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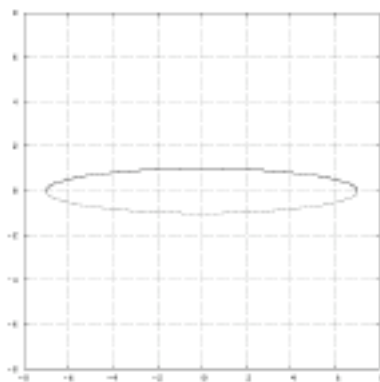
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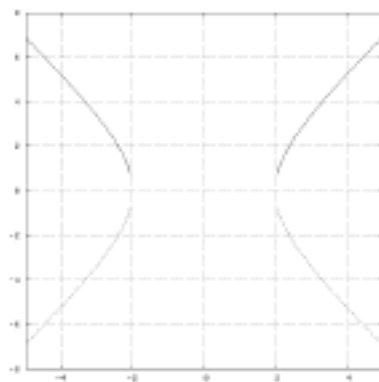
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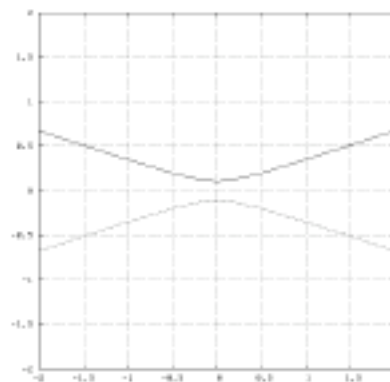
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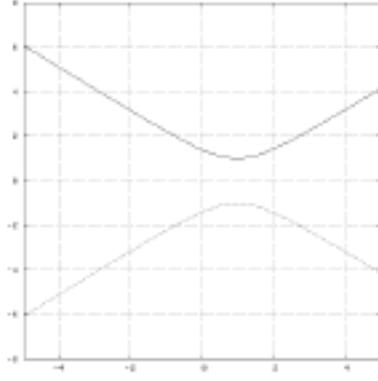
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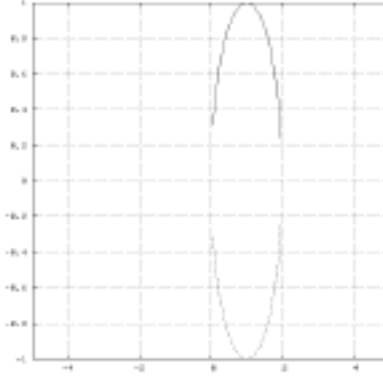
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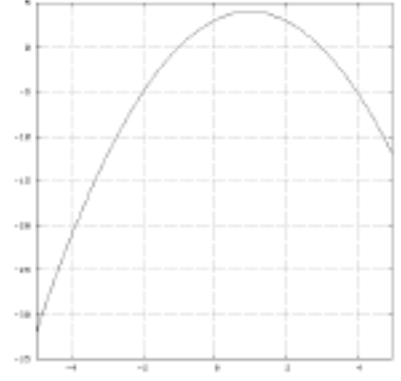
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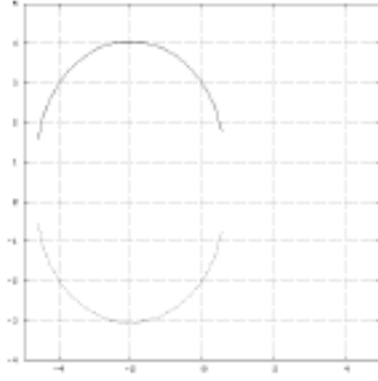
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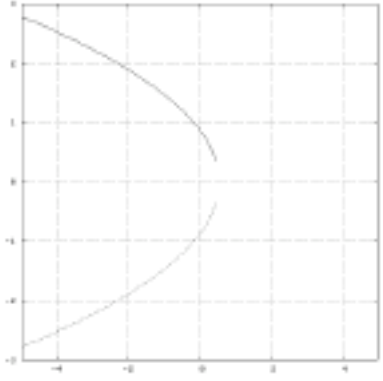
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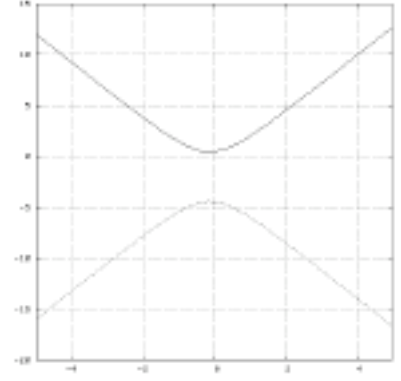
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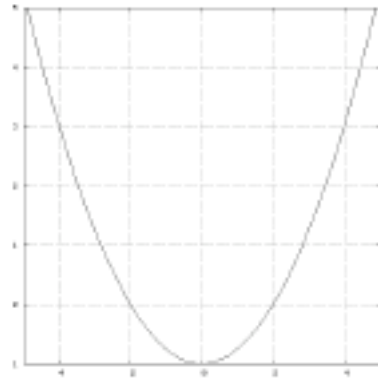
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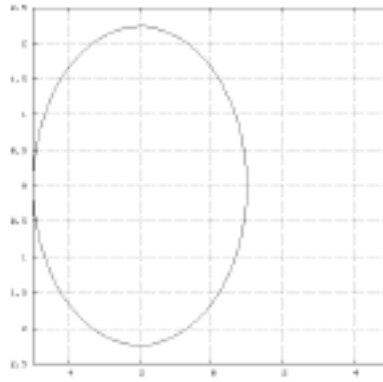
l.



m.



n.



o.

