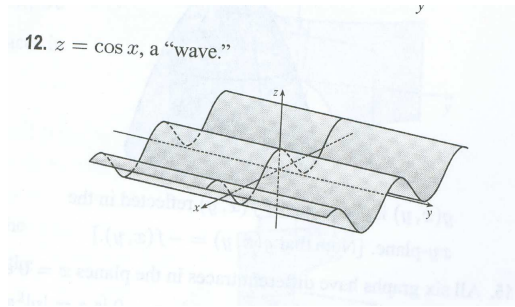


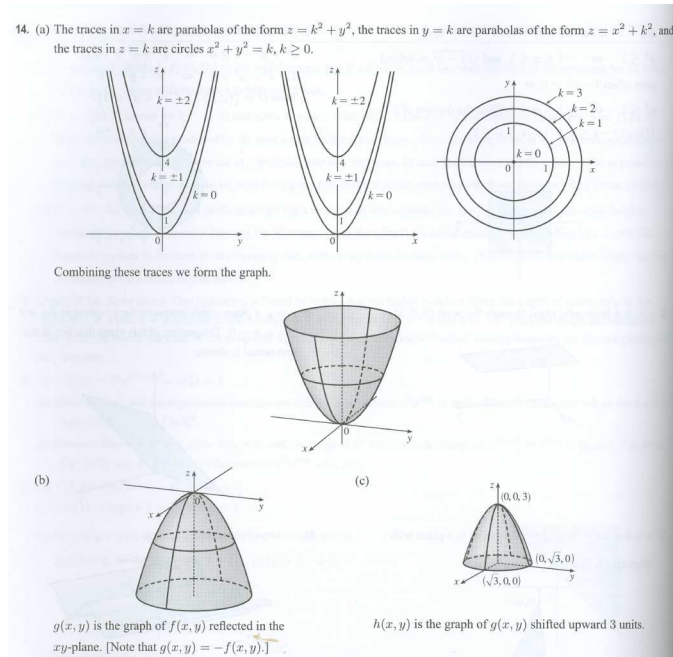
Section 9.6 # 2 III

6 The domain is the set of all (x, y) with $xy \geq 0$, so it is the first and third quadrant of the $x - y$ plane, including the x and y axes.

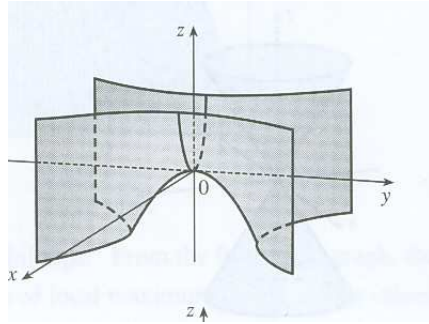
#12



#14



#18

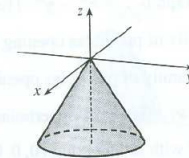
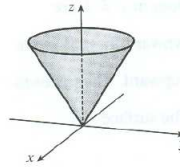
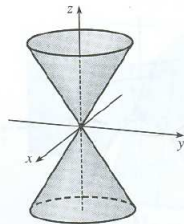


#24

24. (a) The traces of $z^2 = x^2 + y^2$ in $x = k$ are $z^2 = y^2 + k^2$, a family of hyperbolas, as are traces in $y = k$, $z^2 = x^2 + k^2$.
Traces in $z = k$ are $x^2 + y^2 = k^2$, a family of circles.

(b) The surface is a circular cone with axis the z -axis.

(c) The graph of $f(x, y) = \sqrt{x^2 + y^2}$ is the upper half of the cone in part (b), and the graph of $g(x, y) = -\sqrt{x^2 + y^2}$ is the lower half.



Section 9.7 #14 $\Theta = \pi/3$ is the plane that goes through $(0, 0, 0)$, is perpendicular to the $x - y$ plane and contains the line $z = 0$, $\Theta = \pi/3$ in the $x - y$ plane.

#16 Cylinder of radius 2 around the z -axis

#32 a) $14.5 \leq \rho \leq 15$ b) $14.5 \leq \rho \leq 15$ and $0 \leq \Theta \leq \pi$ is one possible answer