Surface Area and Volume of Cones (A)

Calculate the surface area and volume for each cone.

Surface Area = \( \pi r(r + \sqrt{h^2 + r^2}) \)  \hspace{1cm} Volume = \( \pi r^2 \frac{h}{3} \)

1.

\[ h = 17.91 \text{ mi} \]
\[ r = 7.53 \text{ mi} \]

2.

\[ h = 3.17 \text{ mi} \]
\[ r = 1.42 \text{ mi} \]

3.

\[ h = 9.96 \text{ m} \]
\[ r = 4.64 \text{ m} \]

4.

\[ h = 16.40 \text{ mm} \]
\[ r = 9.92 \text{ mm} \]
Calculate the surface area and volume for each cone.

Surface Area = \( \pi r(r + \sqrt{h^2 + r^2}) \)  
Volume = \( \pi r^2 \frac{h}{3} \)

1.

\[ r = 7.53 \text{ mi} \]
\[ h = 17.91 \text{ mi} \]

Surface Area: 637.74 \text{ mi}^2
Volume: 1063.44 \text{ mi}^3

2.

\[ r = 1.42 \text{ mi} \]
\[ h = 3.17 \text{ mi} \]

Surface Area: 21.83 \text{ mi}^2
Volume: 6.69 \text{ mi}^3

3.

\[ r = 4.64 \text{ m} \]
\[ h = 9.96 \text{ m} \]

Surface Area: 227.81 \text{ m}^2
Volume: 224.56 \text{ m}^3

4.

\[ r = 9.92 \text{ mm} \]
\[ h = 16.40 \text{ mm} \]

Surface Area: 906.48 \text{ mm}^2
Volume: 1690.04 \text{ mm}^3
Surface Area and Volume of Cones (B)

Calculate the surface area and volume for each cone.

Surface Area = $\pi r(r + \sqrt{h^2 + r^2})$  Volume = $\pi r^2 \frac{h}{3}$

1. $r = 2.46$ in  $h = 12.36$ in

2. $h = 16.35$ yd  $r = 6.85$ yd

3. $h = 19.98$ cm  $r = 11.76$ cm

4. $h = 5.72$ in  $r = 3.30$ in
Surface Area and Volume of Cones (B) Answers

Calculate the surface area and volume for each cone.

Surface Area = \( \pi r (r + \sqrt{h^2 + r^2}) \)
Volume = \( \frac{\pi r^2 h}{3} \)

1. \( h = 12.36 \text{ in} \) \( r = 2.46 \text{ in} \)

Surface Area: 116.41 in\(^2\)
Volume: 78.33 in\(^3\)

2. \( h = 16.35 \text{ yd} \) \( r = 6.85 \text{ yd} \)

Surface Area: 528.89 yd\(^2\)
Volume: 803.39 yd\(^3\)

3. \( h = 19.98 \text{ cm} \) \( r = 11.76 \text{ cm} \)

Surface Area: 1291.01 cm\(^2\)
Volume: 2893.60 cm\(^3\)

4. \( h = 5.72 \text{ in} \) \( r = 3.30 \text{ in} \)

Surface Area: 102.67 in\(^2\)
Volume: 65.23 in\(^3\)
Surface Area and Volume of Cones (C)

Calculate the surface area and volume for each cone.

Surface Area = \( \pi r(r + \sqrt{h^2 + r^2}) \)  
Volume = \( \pi r^2 \frac{h}{3} \)

1. \( r = 3.26 \text{ AU} \)  \( h = 3.68 \text{ AU} \)

2. \( r = 3.94 \text{ AU} \)  \( h = 4.40 \text{ AU} \)

3. \( r = 4.59 \text{ km} \)  \( h = 18.45 \text{ km} \)

4. \( r = 5.28 \text{ AU} \)  \( h = 13.76 \text{ AU} \)
Surface Area and Volume of Cones (C) Answers

Calculate the surface area and volume for each cone.

Surface Area = \( \pi r(r + \sqrt{h^2 + r^2}) \)

Volume = \( \pi r^2 \frac{h}{3} \)

1.

\[ h = 3.68 \text{ AU} \]
\[ r = 3.26 \text{ AU} \]

Surface Area: 83.74 AU^2
Volume: 40.96 AU^3

2.

\[ h = 4.40 \text{ AU} \]
\[ r = 3.94 \text{ AU} \]

Surface Area: 121.88 AU^2
Volume: 71.53 AU^3

3.

\[ h = 18.45 \text{ km} \]
\[ r = 4.59 \text{ km} \]

Surface Area: 340.34 km^2
Volume: 407.05 km^3

4.

\[ h = 13.76 \text{ AU} \]
\[ r = 5.28 \text{ AU} \]

Surface Area: 332.05 AU^2
Volume: 401.71 AU^3
Surface Area and Volume of Cones (D)

Calculate the surface area and volume for each cone.

Surface Area = \(\pi r(r + \sqrt{h^2 + r^2})\)  
Volume = \(\frac{\pi r^2 h}{3}\)

1. 
   \[r = 2.08 \text{ cm}, \quad h = 8.38 \text{ cm}\]

2. 
   \[r = 2.52 \text{ AU}, \quad h = 10.14 \text{ AU}\]

3. 
   \[r = 14.88 \text{ yd}, \quad h = 23.52 \text{ yd}\]

4. 
   \[r = 16.00 \text{ AU}, \quad h = 30.25 \text{ AU}\]
Surface Area and Volume of Cones (D) Answers

Calculate the surface area and volume for each cone.

\[
\text{Surface Area} = \pi r (r + \sqrt{h^2 + r^2}) \quad \text{Volume} = \frac{\pi r^2 h}{3}
\]

1. \(r = 2.08\) cm \(h = 8.38\) cm
   
   Surface Area: 70.01 cm\(^2\)
   Volume: 37.97 cm\(^3\)

2. \(r = 2.52\) AU \(h = 10.14\) AU
   
   Surface Area: 102.67 AU\(^2\)
   Volume: 67.43 AU\(^3\)

3. \(r = 14.88\) yd \(h = 23.52\) yd
   
   Surface Area: 1996.64 yd\(^2\)
   Volume: 5453.46 yd\(^3\)

4. \(r = 16.00\) AU \(h = 30.25\) AU
   
   Surface Area: 2524.37 AU\(^2\)
   Volume: 8109.50 AU\(^3\)
Calculate the surface area and volume for each cone.

Surface Area = $\pi r(r + \sqrt{h^2 + r^2})$

Volume = $\frac{\pi r^2 h}{3}$

1. $r = 14.16\text{ in}$, $h = 19.96\text{ in}$

2. $r = 5.13\text{ m}$, $h = 16.32\text{ m}$

3. $r = 16.10\text{ km}$, $h = 15.60\text{ km}$

4. $r = 1.64\text{ m}$, $h = 4.88\text{ m}$
Surface Area and Volume of Cones (E) Answers

Calculate the surface area and volume for each cone.

Surface Area $= \pi r(r + \sqrt{h^2 + r^2})$  Volume $= \pi r^2 \frac{h}{3}$

1. $r = 14.16$ in, $h = 19.96$ in
   - Surface Area: 1718.57 in$^2$
   - Volume: 4190.98 in$^3$

2. $r = 5.13$ m, $h = 16.32$ m
   - Surface Area: 358.38 m$^2$
   - Volume: 449.76 m$^3$

3. $r = 16.10$ km, $h = 15.60$ km
   - Surface Area: 1948.23 km$^2$
   - Volume: 4234.53 km$^3$

4. $r = 1.64$ m, $h = 4.88$ m
   - Surface Area: 34.97 m$^2$
   - Volume: 13.74 m$^3$
Surface Area and Volume of Cones (F)

Calculate the surface area and volume for each cone.

Surface Area = \( \pi r(r + \sqrt{h^2 + r^2}) \)  
Volume = \( \frac{\pi r^2 h}{3} \)

1. 
   \( h = 20.00 \text{ in} \) \quad \( r = 15.04 \text{ in} \)

2. 
   \( h = 23.70 \text{ in} \) \quad \( r = 10.65 \text{ in} \)

3. 
   \( h = 22.05 \text{ yd} \) \quad \( r = 8.10 \text{ yd} \)

4. 
   \( h = 23.75 \text{ AU} \) \quad \( r = 16.65 \text{ AU} \)
Calculate the surface area and volume for each cone.

Surface Area = $\pi r(r + \sqrt{h^2 + r^2})$
Volume = $\pi r^2 \frac{h}{3}$

1. $r = 15.04\text{ in}$
   $h = 20.00\text{ in}$
   Surface Area: $1893.01\text{ in}^2$
   Volume: $4737.56\text{ in}^3$

2. $r = 10.65\text{ in}$
   $h = 23.70\text{ in}$
   Surface Area: $1225.66\text{ in}^2$
   Volume: $2814.99\text{ in}^3$

3. $r = 8.10\text{ yd}$
   $h = 22.05\text{ yd}$
   Surface Area: $803.89\text{ yd}^2$
   Volume: $1514.98\text{ yd}^3$

4. $r = 16.65\text{ AU}$
   $h = 23.75\text{ AU}$
   Surface Area: $2388.10\text{ AU}^2$
   Volume: $6894.78\text{ AU}^3$
Calculate the surface area and volume for each cone.

\[
\text{Surface Area} = \pi r (r + \sqrt{h^2 + r^2}) \quad \text{Volume} = \frac{\pi r^2 h}{3}
\]

1. \( r = 6.42 \text{ yd} \quad h = 6.78 \text{ yd} \)

2. \( r = 11.04 \text{ AU} \quad h = 26.68 \text{ AU} \)

3. \( r = 10.88 \text{ nm} \quad h = 16.80 \text{ nm} \)

4. \( r = 3.30 \text{ mm} \quad h = 13.02 \text{ mm} \)
Surface Area and Volume of Cones (G) Answers

Calculate the surface area and volume for each cone.

Surface Area = \( \pi r (r + \sqrt{h^2 + r^2}) \)
Volume = \( \pi r^2 \frac{h}{3} \)

1.

Surface Area: 317.81 yd\(^2\)
Volume: 292.64 yd\(^3\)

2.

Surface Area: 1384.34 AU\(^2\)
Volume: 3405.28 AU\(^3\)

3.

Surface Area: 1056.02 nm\(^2\)
Volume: 2082.55 nm\(^3\)

4.

Surface Area: 173.46 mm\(^2\)
Volume: 148.48 mm\(^3\)
Surface Area and Volume of Cones (H)

Calculate the surface area and volume for each cone.

Surface Area = \( \pi r (r + \sqrt{h^2 + r^2}) \)
Volume = \( \pi r^2 \frac{h}{3} \)

1. \( h = 18.87 \text{ AU} \)
\( r = 11.10 \text{ AU} \)

2. \( h = 12.21 \text{ yd} \)
\( r = 10.41 \text{ yd} \)

3. \( h = 15.03 \text{ AU} \)
\( r = 9.66 \text{ AU} \)

4. \( h = 4.76 \text{ mi} \)
\( r = 3.57 \text{ mi} \)
Surface Area and Volume of Cones (H) Answers

Calculate the surface area and volume for each cone.

\[ \text{Surface Area} = \pi r (r + \sqrt{h^2 + r^2}) \quad \text{Volume} = \frac{\pi r^2 h}{3} \]

1. \[
\begin{align*}
r &= 11.10 \text{ AU} \\
h &= 18.87 \text{ AU}
\end{align*}
\]

Surface Area: 1150.51 \text{ AU}^2
Volume: 2434.71 \text{ AU}^3

2. \[
\begin{align*}
r &= 10.41 \text{ yd} \\
h &= 12.21 \text{ yd}
\end{align*}
\]

Surface Area: 865.19 \text{ yd}^2
Volume: 1385.63 \text{ yd}^3

3. \[
\begin{align*}
r &= 9.66 \text{ AU} \\
h &= 15.03 \text{ AU}
\end{align*}
\]

Surface Area: 835.37 \text{ AU}^2
Volume: 1468.73 \text{ AU}^3

4. \[
\begin{align*}
r &= 3.57 \text{ mi} \\
h &= 4.76 \text{ mi}
\end{align*}
\]

Surface Area: 106.77 \text{ mi}^2
Volume: 63.53 \text{ mi}^3
Surface Area and Volume of Cones (I)

Calculate the surface area and volume for each cone.

Surface Area = \( \pi r (r + \sqrt{h^2 + r^2}) \)   Volume = \( \pi r^2 \frac{h}{3} \)

1. \( r = 10.44 \text{ mi} \) \( h = 22.00 \text{ mi} \)
2. \( r = 1.74 \text{ ft} \) \( h = 6.10 \text{ ft} \)
3. \( r = 6.35 \text{ mi} \) \( h = 34.05 \text{ mi} \)
4. \( r = 11.95 \text{ yd} \) \( h = 18.85 \text{ yd} \)
Calculate the surface area and volume for each cone.

Surface Area = \( \pi r(r + \sqrt{h^2 + r^2}) \)  Volume = \( \pi r^2 \frac{h}{3} \)

1. \( h = 22.00 \text{ mi} \)
   \( r = 10.44 \text{ mi} \)
   Surface Area: 1141.10 mi\(^2\)
   Volume: 2511.03 mi\(^3\)

2. \( h = 6.10 \text{ ft} \)
   \( r = 1.74 \text{ ft} \)
   Surface Area: 44.19 ft\(^2\)
   Volume: 19.34 ft\(^3\)

3. \( h = 34.05 \text{ mi} \)
   \( r = 6.35 \text{ mi} \)
   Surface Area: 817.66 mi\(^2\)
   Volume: 1437.78 mi\(^3\)

4. \( h = 18.85 \text{ yd} \)
   \( r = 11.95 \text{ yd} \)
   Surface Area: 1286.52 yd\(^2\)
   Volume: 2818.87 yd\(^3\)
Surface Area and Volume of Cones (J)

Calculate the surface area and volume for each cone.

Surface Area = \( \pi r (r + \sqrt{h^2 + r^2}) \)
Volume = \( \frac{\pi r^2 h}{3} \)

1. 
   \( h = 17.24 \text{ km} \)
   \( r = 11.04 \text{ km} \)

2. 
   \( h = 11.62 \text{ in} \)
   \( r = 4.88 \text{ in} \)

3. 
   \( h = 5.30 \text{ mi} \)
   \( r = 3.83 \text{ mi} \)

4. 
   \( h = 23.56 \text{ m} \)
   \( r = 6.40 \text{ m} \)
Surface Area and Volume of Cones (J) Answers

Calculate the surface area and volume for each cone.

Surface Area = \( \pi r(r + \sqrt{h^2 + r^2}) \)  Volume = \( \frac{\pi r^2 h}{3} \)

1. \( h = 17.24 \text{ km} \)  \( r = 11.04 \text{ km} \)
   
   Surface Area: 1092.93 km\(^2\)
   Volume: 2200.41 km\(^3\)

2. \( h = 11.62 \text{ in} \)
   \( r = 4.88 \text{ in} \)

   Surface Area: 268.03 in\(^2\)
   Volume: 289.78 in\(^3\)

3. \( h = 5.30 \text{ mi} \)
   \( r = 3.83 \text{ mi} \)

   Surface Area: 124.76 mi\(^2\)
   Volume: 81.41 mi\(^3\)

4. \( h = 23.56 \text{ m} \)
   \( r = 6.40 \text{ m} \)

   Surface Area: 619.55 m\(^2\)
   Volume: 1010.56 m\(^3\)