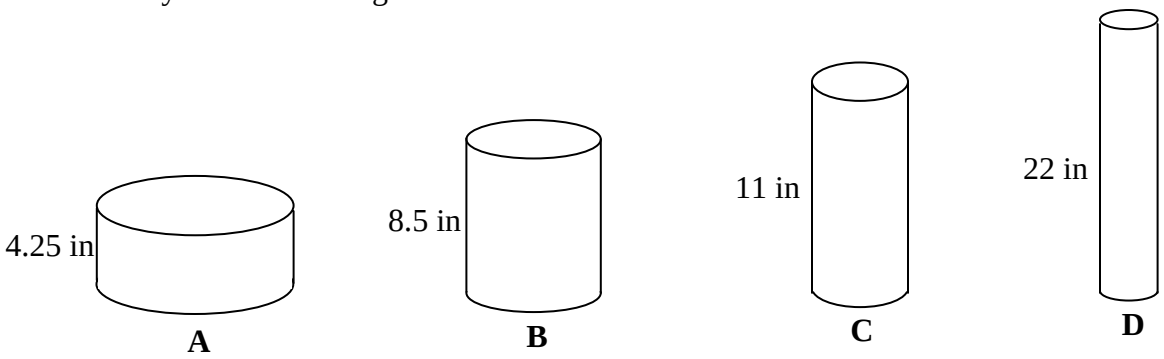
Prisms: Areas and Volume

Volume of Paper Cylinders

Each lateral surface was made using one entire sheet of $8\frac{1}{2}$" by 11" paper.

Choose the cylinder with the greatest volume.



Note: The figures are not drawn to scale.

Directions: Complete the table for each cylinder.

Cylinder	Circumference	Radius	Volume
A	11 + 11 = 22		
B			
C			
D			

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Answers:

A. $C = 11 + 11 = 22$ in
$C = 2\pi r = 22$ $\quad r \approx 3.5$ in
$V = \pi r^2 h = (\pi)(3.5)^2(4.25) \approx 163.6$ in^3

B. $C = 11 = 2\pi r$ $\quad r \approx 1.75$ in
$V = \pi r^2 h = (\pi)(1.75)^2(8.5) \approx 81.8$ in^3

C. $C = 8.5 = 2\pi r$ $\quad r \approx 1.35$ in
$V = \pi r^2 h = (\pi)(1.35)^2(11) \approx 63$ in^3

D. $C = 8.5 \div 2 = 4.25$
$C = 4.25 = 2\pi r$ $\quad r \approx 0.676$ in
$V = \pi r^2 h = (\pi)(0.676)^2(22) \approx 31.6$ in^3

A has the greatest volume because it has the largest radius.