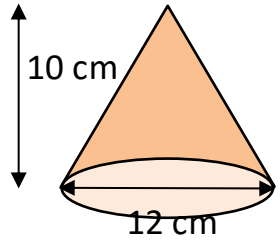
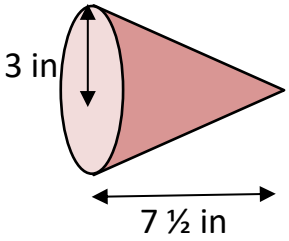
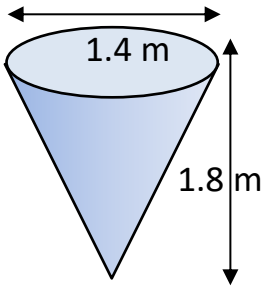
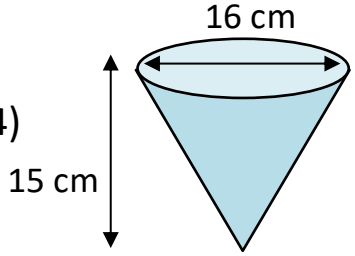
Name Date

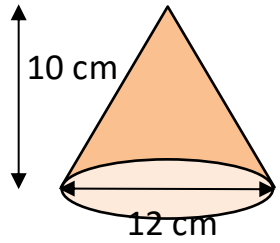
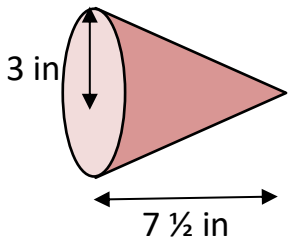
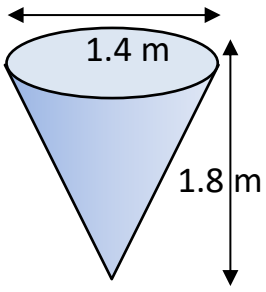
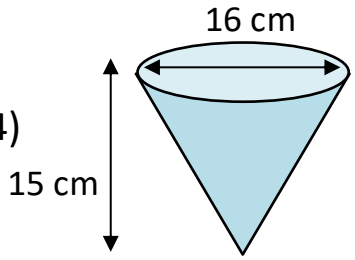
SURFACE AREA OF A CONE SHEET 2

Use the radius or diameter and height measurements to find the area of these open and closed cones.
Give your answers to 2 decimal places.

CONE	WORKING OUT	AREA
CLOSED CONE 1) 		
OPEN CONE 2) 		
CLOSED CONE 3) 		
OPEN CONE 4) 		

Name Date

SURFACE AREA OF A CONE SHEET 2 ANSWERS

CONE	WORKING OUT	AREA
CLOSED CONE 1)  	Diameter of circle = 12 cm. Radius of circle = 12 ÷ 2 = 6 cm Area of closed cone = $\pi r(r + \sqrt{(r^2 + h^2)})$ $= \pi(6)(6 + \sqrt{6^2 + 12^2}) = 6\pi(6 + \sqrt{36 + 100})$ $= 6\pi(6 + \sqrt{136}) = 6\pi(6 + 11.662\ldots)$ $= 6\pi(17.662\ldots) = 105.971\ldots\ \pi$ $= 332.92\ cm^2$ to 1 decimal place	$332.92\ cm^2$
OPEN CONE 2)  	Area of open cone = $\pi r \sqrt{(r^2 + h^2)}$ $= \pi(3)\sqrt{3^2 + 7\,½^2} = 3\pi\sqrt{9 + 56\,¼}$ $= 3\pi\sqrt{65\,¼} = 3\pi(8.0777\ldots)$ $= 24.233\ldots\ \pi$ $= 76.13\ in^2$ to 2 decimal places	$76.13\ in^2$
CLOSED CONE 3)  	Diameter of circle = 1.4 m. Radius of circle = 1.4 ÷ 2 = 0.7 m Area of closed cone = $\pi r(r + \sqrt{(r^2 + h^2)})$ $= \pi(0.7)(0.7 + \sqrt{0.7^2 + 1.8^2})$ $= 0.7\pi(0.7 + \sqrt{0.49 + 3.24})$ $= 0.7\pi(0.7 + \sqrt{3.73}) = 0.7\pi(2.631\ldots)$ $= 1.8419\ldots\ \pi$ $= 5.79\ m^2$ to 1 decimal place	$5.79\ m^2$
OPEN CONE 4)  	Diameter of circle = 16 cm. Radius of circle = 16 ÷ 2 = 8 cm Area of open cone = $\pi r \sqrt{(r^2 + h^2)}$ $= \pi(8)\sqrt{8^2 + 15^2} = 8\pi\sqrt{64 + 225}$ $= 8\pi\sqrt{289} = 8\pi(17)$ $= 136\ \pi$ $= 427.26\ cm^2$ to 2 decimal places	$427.26\ cm^2$