Unit 6: Functions and Volume

ADVANCED

Name: _____ Date: _____

Show all work. Give exact answers; leave answers in terms of pi unless the problem says to use pi = 3.14.

1. A cone has radius 6 cm and height 14 cm. Find its exact volume in terms of pi. (V = (1/3)·pi·r^2·h)

Answer: _____

2. Find the exact volume of a sphere with radius 9 in, in terms of pi. (V = (4/3)·pi·r^3)

Answer: _____

3. A cylinder has volume 400·pi cubic units and height 16 units. Find its radius.

Answer: _____

4. For the function f(x) = 3x^2 - 5x + 2, find f(-4).

Answer: _____

5. A prism has a trapezoidal base with parallel sides 8 cm and 14 cm and a height of 5 cm between them. The prism is 12 cm long. Find its volume in cubic cm.

Answer: _____

6. Find the total surface area of a closed cylinder with radius 4 m and height 10 m, in terms of pi. (SA = 2·pi·r^2 + 2·pi·r·h)

Answer: _____

7. A cone has radius 9 units and height 12 units. Find its total surface area (lateral + base) in terms of pi. Use slant height l = sqrt(r^2 + h^2), lateral = pi·r·l.

Answer: _____

8. Find the exact volume of a hemisphere with radius 6 ft, in terms of pi. (A hemisphere is half a sphere.)

Answer: _____

9. A linear function satisfies f(2) = 7 and f(5) = 19. Find f(10).

Answer: _____

10. A sphere has volume 288·pi cubic cm. Find its radius in cm.

Answer: _____

11. A cylinder has radius 7 cm and height 10 cm. Find its volume using pi = 3.14. Give a decimal number.

Answer: _____

12. A cone has volume 100·pi cubic units and base radius 5 units. Find its height.

Answer: _____