Name: _____ Date: _____

Fresh Math

Volume of Spheres and Composite Solids - Medium

Find the volume of each sphere or hemisphere ($V = (4/3)\pi r^3$). Give the answer in terms of π and rounded to the nearest tenth.

1. Hemisphere: diameter 14 m
2. Hemisphere: radius 9 ft
3. Sphere: radius 2 in.
4. Sphere: radius 8 cm
5. Sphere: radius 9 m
6. Sphere: radius 4 in.

Find the volume of each composite solid. Give the answer in terms of π and rounded to the nearest tenth.

7. A toy rocket is a cylinder (radius 5 in., height 12 in.) topped with a cone (same radius, height 12 in.).
8. A toy rocket is a cylinder (radius 6 cm, height 12 cm) topped with a cone (same radius, height 12 cm).
9. A capsule is a cylinder (radius 2 cm, length 14 cm) with a hemisphere on each end.
10. A toy rocket is a cylinder (radius 8 cm, height 4 cm) topped with a cone (same radius, height 12 cm).

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Volume of Spheres and Composite Solids - Medium

Find the volume of each composite solid. Give the answer in terms of π and rounded to the nearest tenth.

11. An ice cream cone (radius 4 m, height 12 m) is filled and topped with a hemisphere of ice cream of the same radius.

12. A toy rocket is a cylinder (radius 6 m, height 15 m) topped with a cone (same radius, height 3 m).

Find the missing measurement. Use the volume formulas for cylinders, cones, and spheres.

13. A cylinder has volume 468π cm^3 and radius 6 cm. Find its height.

14. A cone has volume 64π m^3 and radius 8 m. Find its height.

15. A cylinder has volume 18π cm^3 and height 2 cm. Find its radius.

16. A cylinder has volume 539π in^3 and radius 7 in. Find its height.

17. A sphere has volume 972π m^3. Find its radius.

18. A cylinder has volume 396π cm^3 and radius 6 cm. Find its height.

19. A cylinder has volume 512π cm^3 and radius 8 cm. Find its height.

20. A cylinder has volume 54π in^3 and height 6 in. Find its radius.

Volume of Spheres and Composite Solids - Medium - Answer Key

1. Hemisphere: diameter 14 m
   $(686/3)\pi \approx 718.4\ m^3$

2. Hemisphere: radius 9 ft
   $486\pi \approx 1{,}526.8\ ft^3$

3. Sphere: radius 2 in.
   $(32/3)\pi \approx 33.5\ in^3$

4. Sphere: radius 8 cm
   $(2048/3)\pi \approx 2{,}144.7\ cm^3$

5. Sphere: radius 9 m
   $972\pi \approx 3{,}053.6\ m^3$

6. Sphere: radius 4 in.
   $(256/3)\pi \approx 268.1\ in^3$

7. A toy rocket is a cylinder (radius 5 in., height 12 in.) topped with a cone (same radius, height 12 in.).
   $400\pi \approx 1{,}256.6\ in^3$

8. A toy rocket is a cylinder (radius 6 cm, height 12 cm) topped with a cone (same radius, height 12 cm).
   $576\pi \approx 1{,}809.6\ cm^3$

9. A capsule is a cylinder (radius 2 cm, length 14 cm) with a hemisphere on each end.
   $(200/3)\pi \approx 209.4\ cm^3$

10. A toy rocket is a cylinder (radius 8 cm, height 4 cm) topped with a cone (same radius, height 12 cm).
    $512\pi \approx 1{,}608.5\ cm^3$

Volume of Spheres and Composite Solids - Medium - Answer Key

11. An ice cream cone (radius 4 m, height 12 m) is filled and topped with a hemisphere of ice cream of the same radius.
    $(320/3)\pi \approx 335.1$ m³

12. A toy rocket is a cylinder (radius 6 m, height 15 m) topped with a cone (same radius, height 3 m).
    $576\pi \approx 1{,}809.6$ m³

13. A cylinder has volume 468π cm³ and radius 6 cm. Find its height.

    13 cm

14. A cone has volume 64π m³ and radius 8 m. Find its height.

    3 m

15. A cylinder has volume 18π cm³ and height 2 cm. Find its radius.

    3 cm

16. A cylinder has volume 539π in³ and radius 7 in. Find its height.

    11 in.

17. A sphere has volume 972π m³. Find its radius.

    9 m

18. A cylinder has volume 396π cm³ and radius 6 cm. Find its height.

    11 cm

19. A cylinder has volume 512π cm³ and radius 8 cm. Find its height.

    8 cm

20. A cylinder has volume 54π in³ and height 6 in. Find its radius.

    3 in.