

Name _____

STAAR GRADE 8 MATHEMATICS REFERENCE MATERIALS



LINEAR EQUATIONS

Slope-intercept form	$y = mx + b$
Direct variation	$y = kx$
Slope of a line	$m = \frac{y_2 - y_1}{x_2 - x_1}$

CIRCUMFERENCE

Circle $C = 2\pi r$ or $C = \pi d$

AREA

Triangle	$A = \frac{1}{2}bh$
Rectangle or parallelogram	$A = bh$
Trapezoid	$A = \frac{1}{2}(b_1 + b_2)h$
Circle	$A = \pi r^2$

SURFACE AREA

	Lateral	Total
Prism	$S = Ph$	$S = Ph + 2B$
Cylinder	$S = 2\pi rh$	$S = 2\pi rh + 2\pi r^2$

VOLUME

Prism or cylinder	$V = Bh$
Pyramid or cone	$V = \frac{1}{3}Bh$
Sphere	$V = \frac{4}{3}\pi r^3$

ADDITIONAL INFORMATION

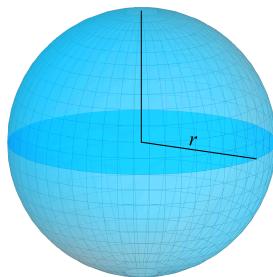
Pythagorean theorem	$a^2 + b^2 = c^2$
Simple interest	$I = Prt$
Compound interest	$A = P(1 + r)^t$

Directions: When working each of the following questions, be sure to show all work. Be sure to use 3.14 for pi.

- 1) To the nearest tenth, find the volume of a sphere with a diameter of 12 cm.

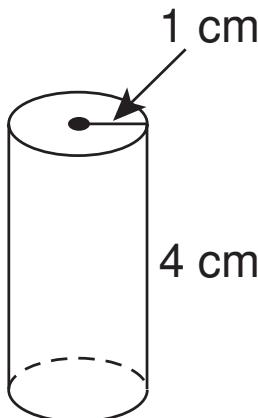
Use $\pi = 3.14$.

- a) 150.7 cm^3
- b) 678.2 cm^3
- c) 904.3 cm^3
- d) $7,234.6 \text{ cm}^3$



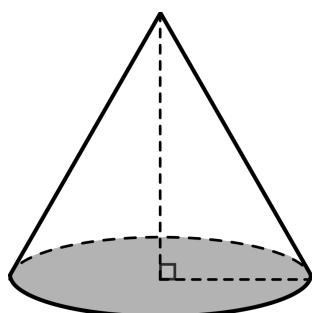
- 2) Find the volume of this figure to the nearest hundredth. Use $\pi = 3.14$.

- a) 12.56 cm^3
- b) 25.12 cm^3
- c) 28.56 cm^3
- d) 50.24 cm^3



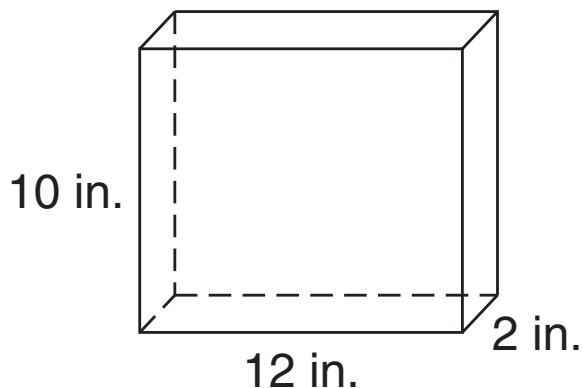
- 3) A cone has a diameter of 2.5 inches and a height of 5 inches. Use $\pi = 3.14$ to find the volume of the cone to the nearest tenth.

- a) 8.2 in^3
- b) 24.5 in^3
- c) 32.7 in^3
- d) 40.9 in^3



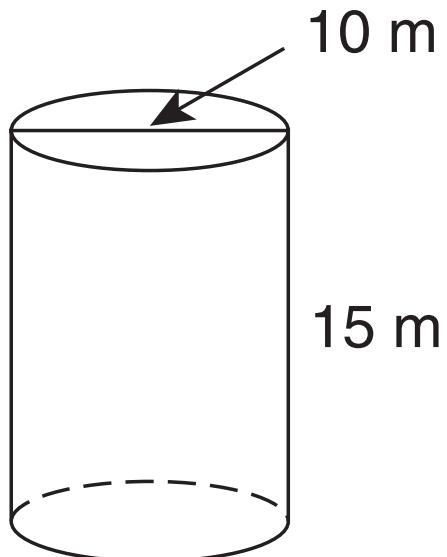
4) Find the surface area of the figure.

- a) 24 in^2
- b) 188 in^2
- c) 304 in^2
- d) 328 in^2



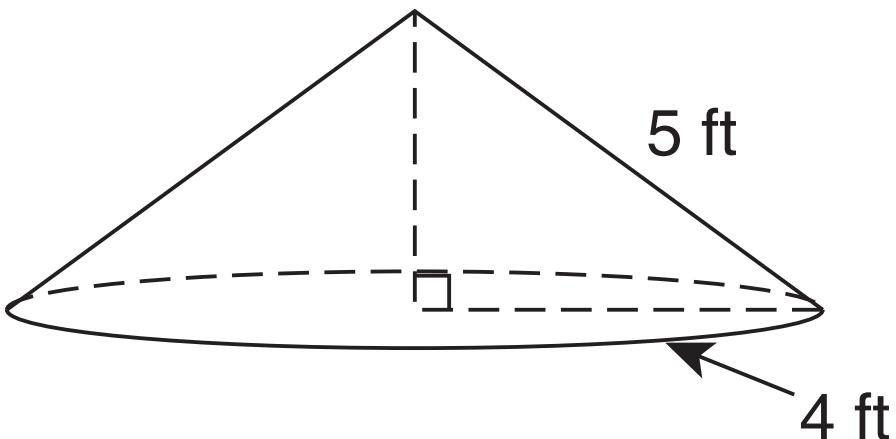
5) Find the surface area of the figure. Use $\pi = 3.14$.

- a) 549.5 m^2
- b) 628 m^2
- c) $1,099 \text{ m}^2$
- d) $1,570 \text{ m}^2$



6) What is the surface area of the cone? Use $\pi = 3.14$.

- a) 62.8 ft^2
- b) 113.04 ft^2
- c) 226.08 ft^2
- d) 326.56 ft^2

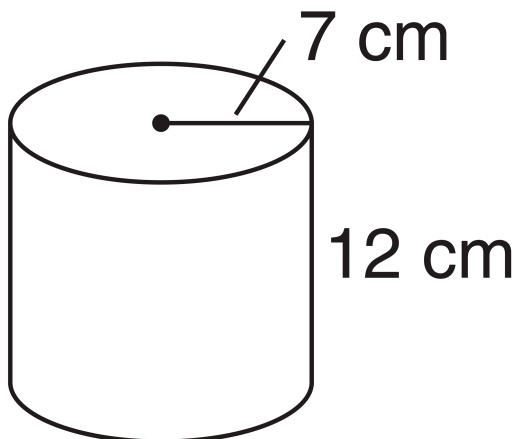


7) A large box has dimensions of $18 \text{ ft} \times 11 \text{ ft} \times 13 \text{ ft}$. What is its volume?

- a) 42 ft^3
- b) 198 ft^3
- c) $1,287 \text{ ft}^3$
- d) $2,574 \text{ ft}^3$

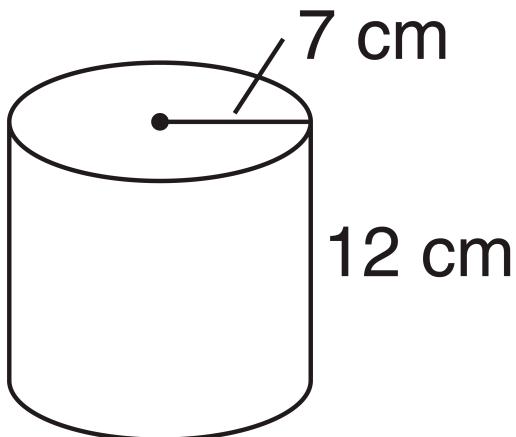
- 8) Find the circumference of the circular base to the nearest hundredth.
Use $\pi = 3.14$.

- a) 40.68 cm
- b) **43.96 cm**
- c) 43.99 cm
- d) 54.83 cm



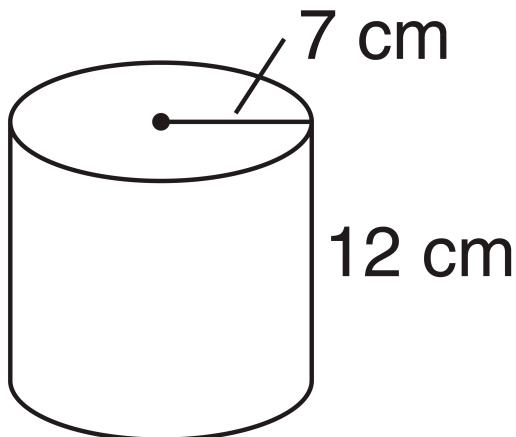
- 9) Find the area of the circular base to the nearest hundredth. Use $\pi = 3.14$.

- a) **153.86 cm^2**
- b) 461.58 cm^2
- c) 835.66 cm^2
- d) $1,846.32 \text{ cm}^2$



- 10) Find the volume of this figure to the nearest hundredth. Use $\pi = 3.14$.

- a) 340.86 cm^3
- b) 461.58 cm^3
- c) 835.66 cm^3
- d) **$1,846.32 \text{ cm}^3$**



11) A cone has a diameter of 16 *inches* and a height of 5 *inches*. Use $\pi = 3.14$ to find the volume of the cone to the nearest tenth.

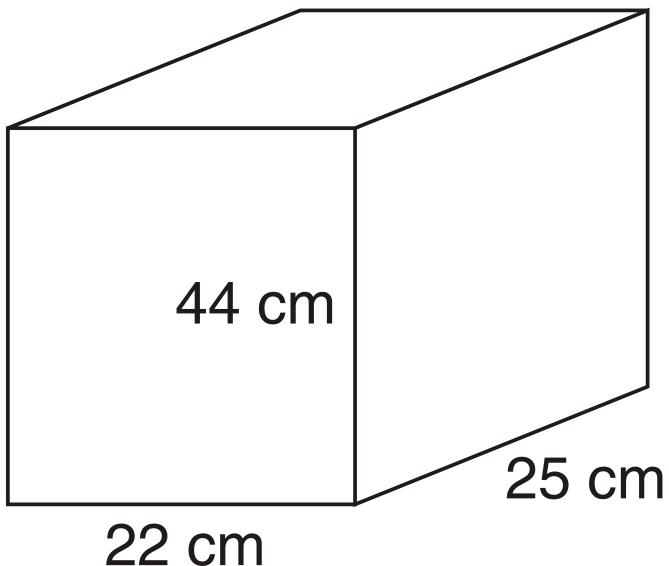
- a) 334.9 *in.*³
- b) 438.2 *in.*³
- c) 1340 *in.*³
- d) 1646.9 *in.*³

12) A cone-shaped paper cup has a top diameter of 8.5 *cm* and a height of 12 *cm*. What is the volume of the cone to the nearest tenth? Use $\pi = 3.14$.

- a) 201 *in.*³
- b) 334.9 *in.*³
- c) 438.2 *in.*³
- d) 1340 *in.*³

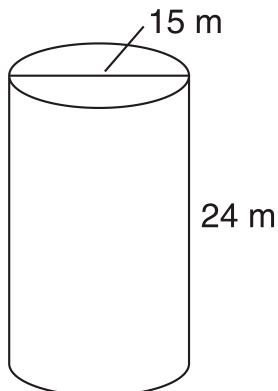
13) Find the surface area of the figure.

- a) 4,860 *cm*²
- b) 5,236 *cm*²
- c) 22,000 *cm*²
- d) 24,200 *cm*²



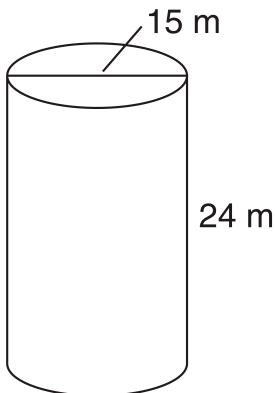
14) What is the sum area of both circular bases? Use $\pi = 3.14$.

- a) 148.7 m^2
- b) 345.6 m^2
- c) 353.3 m^2
- d) 964.4 m^2



15) What is the surface area of the figure? Use $\pi = 3.14$

- a) $1,483.7 \text{ m}^2$
- b) $3,675.66 \text{ m}^2$
- c) $4,241.15 \text{ m}^2$
- d) $16,964 \text{ m}^2$



16) To the nearest tenth, find the volume of a sphere with a diameter of 36 cm.

Use $\pi = 3.14$.

- a) $4,071.5 \text{ cm}^3$
- b) $16,286.02 \text{ cm}^3$
- c) $24,416.7 \text{ cm}^3$
- d) $195,432.2 \text{ cm}^3$