STAAR GRADE 8 MATHEMATICS REFERENCE MATERIALS

STAAR
State of Texas
Assessments of
Academic Readiness
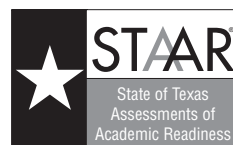
LINEAR EQUATIONS

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

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	$A = P(1 + r)^t$

Gillespie

Course 3: Ch7 Test Review

Connect Algebra to Geometry

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

1) Find the volume. Round to the nearest tenth.

a) $26.2\ in.^3$
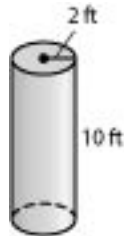
b) $104.6\ in.^3$

c) $104.7\ in.^3$

d) $6.5\ in.^3$

5 in.

2) Find the volume. Round to the nearest tenth.

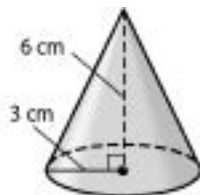a) $125.6\ ft^3$

b) $127\ ft^3$

c) $201\ ft^3$

d) $502.4\ ft^3$

2 ft

10 ft

3) Find the volume. Round to the nearest tenth.

a) $201.2\ cm^3$

b) $21.2\ cm^3$

c) $47.1\ cm^3$

d) $56.5\ cm^3$

6 cm

3 cm

4) Find the volume. Round to the nearest tenth.

a) $1{,}071.8\ in.^3$

b) $1{,}071.7\ in.^3$

8 in.

c) $267\ in.^3$

d) $268\ in.^3$

5) Find the volume. Round to the nearest tenth.

cylinder:

diameter = 8 mm

height = 3.4 mm

a) $170.8\ mm^3$

b) $201\ mm^3$

c) $401.9\ mm^3$

d) $803.8\ mm^3$

6) Find the volume. Round to the nearest tenth.

cone:

diameter = 5 mm

height = 11 mm

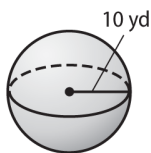a) $71.9\ mm^3$

b) $72\ mm^3$

c) $317.9\ mm^3$

d) $287.8\ mm^3$

7) Find the volume. Round to the nearest tenth.

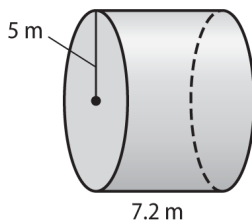a) $1,674.7 \ yd^3$

b) $418.7 \ yd^3$

c) $267 \ yd^3$

d) $268 \ yd^3$

10 yd

8) Find the volume. Round to the nearest tenth.

a) $115.5 \ m^3$

b) $278.9 \ m^3$

c) $565.2 \ m^3$

d) $2260.8 \ m^3$

5 m

7.2 m

9) Determine the volume of the cylinder with a diameter of 10 inches and a height of
12 inches. Round to the nearest tenth.

a) $820 \ in^3$

b) $942 \ in^3$

c) $3,454 \ in^3$

d) $3768 \ in^3$

10) A hemisphere has a radius of 8 centimeters. Find the volume of the hemisphere. Round to the nearest tenth.
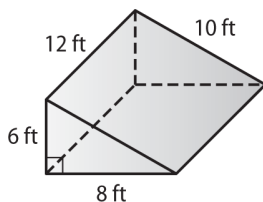
a) $1{,}071.8\ cm^3$

b) $267.9\ cm^3$

c) $133.9\ cm^3$

d) $134\ cm^3$

11) A cylindrical waste can has a height of 20 inches and its base has a radius of 9.5 inches. Find the volume of the waste can. Round to the nearest tenth.

a) $1{,}271.7\ in^3$

b) $1{,}416.9\ in^3$

c) $2{,}833.9\ in^3$

d) $5{,}667.7\ in^3$

12) Determine the lateral area. Round to the nearest tenth.

a) $108\ ft^2$

b) $288\ ft^2$

c) $312\ ft^2$

d) $336\ ft^2$

12 ft, 10 ft, 6 ft, 8 ft

13) Find the lateral area. Round to the nearest tenth.

a) $608\ ft^2$

b) $818\ ft^2$

c) $3{,}768\ ft^2$

d) $7{,}536\ ft^2$

20 ft, 60 ft
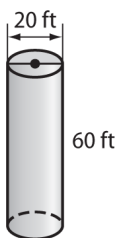
14) Determine the surface area. Round to the nearest tenth.

a) 256 cm^2

b) 324 cm^2

c) 486 cm^2

d) 512 cm^2

9 cm

9 cm

9 cm
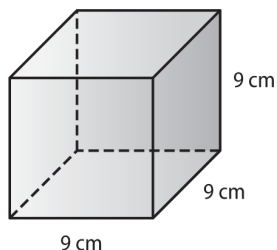
15) A water tank has to be painted. What is the area of the surface to be painted? Assume that the bottom does not need painting. Round to the nearest whole number. (hint: don't include the bottom)

a) 138.2 ft^2

b) 150.7 ft^2

c) 263.8 ft^2

d) 276.3 ft^2

2 ft

10 ft