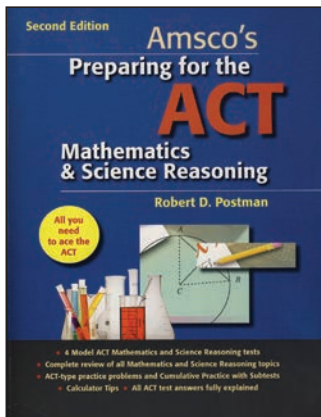


All of the preparation needed for the Mathematics and Science Reasoning sections of the ACT assessment



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Students achieve proficiency through repeated practice.

Practice

Use these formulas to help you complete the practice exercises that follow.

Geometric Formulas

Triangle	Area = $\frac{1}{2}bh$	Circle	Area = πr^2
Square	Area = s^2		Circumference =
Rectangle	Area = lw	Cube	Volume = s^3
Parallelogram	Area = bh	Rectangular Prism	Volume = lwh
Trapezoid	Area = $\frac{1}{2}h(b_1 + b_2)$	Sphere	Volume = $\frac{4}{3}\pi r^3$

For exercises 1–12, all measurements are in centimeters. Use 3.14 for π .

Find the area of each figure.

- Triangle: $b = 3$, $h = 8$
- Square: $s = 0.7$
- Rectangle: $l = 1.5$, $w = 1.2$
- Parallelogram: $b = 2.7$, $h = 1.3$
- Trapezoid: $b_1 = 4$, $b_2 = 0.5$, $h = 1.3$
- Triangle: $b = \frac{1}{2}$, $h = \frac{1}{4}$

Find the circumference and the area of each circle.

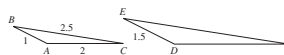
- Circle: $r = 2$
- Circle: $d = 6$
- Circle: $d = 1.8$

Find the volume of each solid.

- Cube: $s = 0.9$
- Rectangular prism: $l = 4$, $w = 6$, $h = 1.5$
- Sphere: $r = 3$

ACT-TYPE PROBLEMS

- In the figure below, $\triangle ABC$ is similar to $\triangle DEF$. What is the length of DF ?

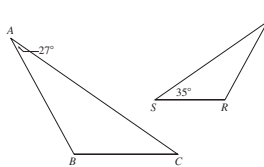


- 1
- 2
- 3
- 4
- 5

- If $\triangle QRS$ is similar to $\triangle XYZ$, which choice gives corresponding sides?

- \overline{QR} and \overline{RQ}
- \overline{RS} and \overline{YZ}
- \overline{QS} and \overline{XY}
- \overline{SR} and \overline{XQ}
- \overline{RQ} and \overline{XZ}

- In the figure below, $\triangle ABC$ is similar to $\triangle QRS$. What is the sum of the measures of $\angle B$ and $\angle Q$?

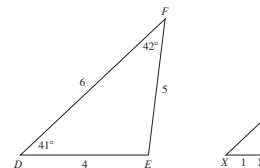


- 54°
- 62°
- 145°
- 153°
- 180°

(Answers on page 385)

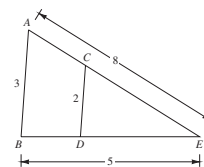
ACT-type problems offer students the opportunity to review concepts likely to be seen on the exam.

- In the figure below, $\triangle DEF$ is similar to $\triangle XYZ$. Which of the following statements is FALSE?



- $m\angle Z = 42^\circ$
- $XZ = 1.5$
- $m\angle X = 41^\circ$
- $YZ = 1.2$
- $m\angle Y = 97^\circ$

- In the figure below, $\triangle ABE$ is similar to $\triangle CDE$. What is the sum of AC and BD ?



- $3\frac{1}{3}$
- $4\frac{1}{2}$
- $5\frac{1}{3}$
- $7\frac{2}{3}$
- $8\frac{2}{3}$