

8.14 Unit Review

Unit 8: Geometry and Measurement

Name: _____

Date: _____

Class/Period: _____

Problem 8.193 Directions:

Show formulas, substitutions, units, and reasoning.
Draw auxiliary lines or nets when they clarify the structure.

Find area and perimeter of a 9×14 rectangle.

Problem 8.196 Directions:

Show formulas, substitutions, units, and reasoning.
Draw auxiliary lines or nets when they clarify the structure.

A parallelogram has area 84 and height 7. Find base.

Problem 8.194 Directions:

Show formulas, substitutions, units, and reasoning.
Draw auxiliary lines or nets when they clarify the structure.

A rectangle has area 135 and base 15. Find height.

Problem 8.197 Directions:

Show formulas, substitutions, units, and reasoning.
Draw auxiliary lines or nets when they clarify the structure.

Find triangle area with base 16 and height 9.

Problem 8.195 Directions:

Show formulas, substitutions, units, and reasoning.
Draw auxiliary lines or nets when they clarify the structure.

Find parallelogram area with base 12.5 and height 6.

Problem 8.198 Directions:

Show formulas, substitutions, units, and reasoning.
Draw auxiliary lines or nets when they clarify the structure.

A triangle has area 54 and base 12. Find height.

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Problem 8.199 Directions:

Show formulas, substitutions, units, and reasoning.
Draw auxiliary lines or nets when they clarify the structure.

Find trapezoid area with bases 7 and 15 and height 8.

Problem 8.202 Directions:

Show formulas, substitutions, units, and reasoning.
Draw auxiliary lines or nets when they clarify the structure.

A 15×12 rectangle has a 5×4 corner removed. Find remaining area.

Problem 8.200 Directions:

Show formulas, substitutions, units, and reasoning.
Draw auxiliary lines or nets when they clarify the structure.

A trapezoid has area 96, bases 10 and 14. Find height.

Problem 8.203 Directions:

Show formulas, substitutions, units, and reasoning.
Draw auxiliary lines or nets when they clarify the structure.

A square frame has outer side 18 and inner side 12. Find frame area.

Problem 8.201 Directions:

Show formulas, substitutions, units, and reasoning.
Draw auxiliary lines or nets when they clarify the structure.

Explain why perpendicular height matters in every area formula.

Problem 8.204 Directions:

Show formulas, substitutions, units, and reasoning.
Draw auxiliary lines or nets when they clarify the structure.

A house shape has width 14, wall height 8, and total height 13. Find area.

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Problem 8.205 Directions:

Show formulas, substitutions, units, and reasoning.
Draw auxiliary lines or nets when they clarify the structure.

A 20×10 wall has two 3×4 windows. Find paintable area.

Problem 8.208 Directions:

Show formulas, substitutions, units, and reasoning.
Draw auxiliary lines or nets when they clarify the structure.

Flooring costs \$6.25 per square foot for 184 square feet. Find cost.

Problem 8.206 Directions:

Show formulas, substitutions, units, and reasoning.
Draw auxiliary lines or nets when they clarify the structure.

Tile covers 24 square inches. How many tiles cover 1,010 square inches?

Problem 8.209 Directions:

Show formulas, substitutions, units, and reasoning.
Draw auxiliary lines or nets when they clarify the structure.

A contractor adds 12% waste to 350 square feet. Find ordered area.

Problem 8.207 Directions:

Show formulas, substitutions, units, and reasoning.
Draw auxiliary lines or nets when they clarify the structure.

A 12×18 pool has a 2-foot border outside. Find border area.

Problem 8.210 Directions:

Show formulas, substitutions, units, and reasoning.
Draw auxiliary lines or nets when they clarify the structure.

Explain when material counts must be rounded up.

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Problem 8.211 Directions:

Show formulas, substitutions, units, and reasoning.
Draw auxiliary lines or nets when they clarify the structure.

Find F , E , V for a hexagonal prism.

Problem 8.214 Directions:

Show formulas, substitutions, units, and reasoning.
Draw auxiliary lines or nets when they clarify the structure.

A net has two congruent triangles and three rectangles.
Name the solid.

Problem 8.212 Directions:

Show formulas, substitutions, units, and reasoning.
Draw auxiliary lines or nets when they clarify the structure.

Find F , E , V for an octagonal pyramid.

Problem 8.215 Directions:

Show formulas, substitutions, units, and reasoning.
Draw auxiliary lines or nets when they clarify the structure.

A rectangular prism measures $9 \times 5 \times 2$. List the dimensions of all six faces.

Problem 8.213 Directions:

Show formulas, substitutions, units, and reasoning.
Draw auxiliary lines or nets when they clarify the structure.

Use Euler's relationship when $V = 12$ and $F = 8$. Find E .

Problem 8.216 Directions:

Show formulas, substitutions, units, and reasoning.
Draw auxiliary lines or nets when they clarify the structure.

Describe why a 2×3 rectangle of squares is not a cube net.

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Problem 8.217 Directions:

Show formulas, substitutions, units, and reasoning.
Draw auxiliary lines or nets when they clarify the structure.

A prism has 24 vertices. Find its base polygon and face count.

Problem 8.220 Directions:

Show formulas, substitutions, units, and reasoning.
Draw auxiliary lines or nets when they clarify the structure.

A rectangular prism measures $10 \times 7 \times 4$. Find its surface area.

Problem 8.218 Directions:

Show formulas, substitutions, units, and reasoning.
Draw auxiliary lines or nets when they clarify the structure.

A pyramid has 16 edges. Find its base polygon and face count.

Problem 8.221 Directions:

Show formulas, substitutions, units, and reasoning.
Draw auxiliary lines or nets when they clarify the structure.

Find surface area of a cube with side 6.

Problem 8.219 Directions:

Show formulas, substitutions, units, and reasoning.
Draw auxiliary lines or nets when they clarify the structure.

Explain what a net reveals about adjacency.

Problem 8.222 Directions:

Show formulas, substitutions, units, and reasoning.
Draw auxiliary lines or nets when they clarify the structure.

An open-top rectangular box measures $8 \times 5 \times 3$. Find the area of its five exterior faces.

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Problem 8.223 Directions:

Show formulas, substitutions, units, and reasoning.
Draw auxiliary lines or nets when they clarify the structure.

A right-triangular prism has base sides 6, 8, 10 and length 12. Find surface area.

Problem 8.226 Directions:

Show formulas, substitutions, units, and reasoning.
Draw auxiliary lines or nets when they clarify the structure.

A triangular prism has triangle base 10, triangle height 6, and length 8. Find volume.

Problem 8.224 Directions:

Show formulas, substitutions, units, and reasoning.
Draw auxiliary lines or nets when they clarify the structure.

A rectangular prism measures $12 \times 7 \times 5$. Find its volume.

Problem 8.227 Directions:

Show formulas, substitutions, units, and reasoning.
Draw auxiliary lines or nets when they clarify the structure.

A trapezoidal prism has bases 6 and 14, trapezoid height 5, and length 10. Find volume.

Problem 8.225 Directions:

Show formulas, substitutions, units, and reasoning.
Draw auxiliary lines or nets when they clarify the structure.

A prism has base area 42 and length 9. Find volume.

Problem 8.228 Directions:

Show formulas, substitutions, units, and reasoning.
Draw auxiliary lines or nets when they clarify the structure.

A rectangular prism has volume 360 and dimensions 12, 5, and h . Find h .

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Problem 8.229 Directions:

Show formulas, substitutions, units, and reasoning.
Draw auxiliary lines or nets when they clarify the structure.

Explain why surface area uses square units and volume uses cubic units.

Problem 8.232 Directions:

Show formulas, substitutions, units, and reasoning.
Draw auxiliary lines or nets when they clarify the structure.

A figure is enlarged by scale factor 1.8. Find the area and volume multipliers.

Problem 8.230 Directions:

Show formulas, substitutions, units, and reasoning.
Draw auxiliary lines or nets when they clarify the structure.

Compare the roles of B , P , and L in $SA = 2B + PL$ and $V = BL$.

Problem 8.233 Directions:

Show formulas, substitutions, units, and reasoning.
Draw auxiliary lines or nets when they clarify the structure.

A cube's side decreases by 25%. Find the percent decrease in surface area and volume.

Problem 8.231 Directions:

Show formulas, substitutions, units, and reasoning.
Draw auxiliary lines or nets when they clarify the structure.

A cube has volume 343. Find surface area.

Problem 8.234 Directions:

Show formulas, substitutions, units, and reasoning.
Draw auxiliary lines or nets when they clarify the structure.

How many cubes with side length $\frac{1}{4}$ fit exactly in a rectangular prism measuring $3 \times 2 \times 1$?

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Problem 8.235 Directions:

Show formulas, substitutions, units, and reasoning. Draw auxiliary lines or nets when they clarify the structure.

A rectangular prism has dimensions $12 \times 10 \times 8$. Boxes measure $3 \times 2 \times 2$. Find exact aligned packing count.

Problem 8.237 Directions:

Show formulas, substitutions, units, and reasoning. Draw auxiliary lines or nets when they clarify the structure.

A square patio is enlarged by adding a 2-foot border on all sides. Its area increases from 144 to 256 square feet. Verify the original and new side lengths and explain the nonlinear area change.

Problem 8.236 Directions:

Show formulas, substitutions, units, and reasoning. Draw auxiliary lines or nets when they clarify the structure.

A closed box has integer dimensions and volume 120. Find the dimension triple with least surface area.

Problem 8.238 Directions:

Show formulas, substitutions, units, and reasoning. Draw auxiliary lines or nets when they clarify the structure.

A triangular prism and rectangular prism have equal lengths and equal volumes. The triangle base is 15 and height 8; the rectangle base has one side 10. Find the other side.

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Problem 8.239 Directions:

Show formulas, substitutions, units, and reasoning. Draw auxiliary lines or nets when they clarify the structure. A scale model has 12.5% of the original volume. Find its positive linear scale factor and explain how cubing the factor verifies the volume percent.