Read shape properties

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Stage 01: Name the parts

Recognise

Show your working or construction on paper. State units where asked. For questions 7 and 8, explain your method. Numerical entries may be rounded to 2 decimal places.

Work on separate paper. Plot and label figures; retain compass arcs. Give a reason for items 7 and 8.

1. A square prism has depth. Is it 2D or 3D?

2. A pentagon is flat. Is it 2D or 3D?

3. A hexagonal prism has depth. Is it 2D or 3D?

4. A octagon is flat. Is it 2D or 3D?

5. A decagonal prism has depth. Is it 2D or 3D?

6. A triangle is flat. Is it 2D or 3D?

7. Diagnose an error. A square prism has depth. Is it 2D or 3D? A learner answers “2D”. Give the correct answer and identify why the proposed answer fails.

8. Explain your choice. A pentagon is flat. Is it 2D or 3D?

Self-check after attempting: use the separate answer key on the skill page. Correct reasoning and a valid drawing matter as well as the final answer.

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Stage 02: Read the markings

Interpret

Show your working or construction on paper. State units where asked. For questions 7 and 8, explain your method. Numerical entries may be rounded to 2 decimal places.

Work on separate paper. Plot and label figures; retain compass arcs. Give a reason for items 7 and 8.

1. A corner has a small square. What does this guarantee?

2. An edge is dashed in a solid drawing. What does this guarantee?

3. Three segments have the same tick. What does this guarantee?

4. A polygon has a marked right angle. What does this guarantee?

5. A triangle is flat. Is it 2D or 3D?

6. A square prism has depth. Is it 2D or 3D?

7. Diagnose an error. A corner has a small square. What does this guarantee? A learner answers “Equal angles”. Give the correct answer and identify why the proposed answer fails.

8. Explain your choice. An edge is dashed in a solid drawing. What does this guarantee?

Self-check after attempting: use the separate answer key on the skill page. Correct reasoning and a valid drawing matter as well as the final answer.

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Stage 03: Count prism features

Perform

Show your working or construction on paper. State units where asked. For questions 7 and 8, explain your method. Numerical entries may be rounded to 2 decimal places.

Work on separate paper. Plot and label figures; retain compass arcs. Give a reason for items 7 and 8.

1. A prism has a 6-sided base. How many edges does it have?

2. A prism has a 8-sided base. How many faces does it have?

3. A prism has a 10-sided base. How many edges does it have?

4. A prism has a 3-sided base. How many faces does it have?

5. Two lines have matching arrows. What does this guarantee?

6. A corner has a small square. What does this guarantee?

7. Diagnose an error. A prism has a 6-sided base. How many edges does it have? A learner answers “19”. Give the correct answer and identify why the proposed answer fails.

8. Explain your choice. A prism has a 8-sided base. How many faces does it have?

Self-check after attempting: use the separate answer key on the skill page. Correct reasoning and a valid drawing matter as well as the final answer.

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Stage 04: Work backward from a count

Select & Adapt

Show your working or construction on paper. State units where asked. For questions 7 and 8, explain your method. Numerical entries may be rounded to 2 decimal places.

Work on separate paper. Plot and label figures; retain compass arcs. Give a reason for items 7 and 8.

1. A prism has 16 vertices. How many sides does each base have?

2. A prism has 20 vertices. How many sides does each base have?

3. A prism has 6 vertices. How many sides does each base have?

4. A prism has 8 vertices. How many sides does each base have?

5. A prism has a 5-sided base. How many faces does it have?

6. A prism has a 6-sided base. How many edges does it have?

7. Diagnose an error. A prism has 16 vertices. How many sides does each base have? A learner answers “9”. Give the correct answer and identify why the proposed answer fails.

8. Explain your choice. A prism has 20 vertices. How many sides does each base have?

Self-check after attempting: use the separate answer key on the skill page. Correct reasoning and a valid drawing matter as well as the final answer.

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Stage 05: Connect counts and Euler’s rule

Connect & Justify

Show your working or construction on paper. State units where asked. For questions 7 and 8, explain your method. Numerical entries may be rounded to 2 decimal places.

Work on separate paper. Plot and label figures; retain compass arcs. Give a reason for items 7 and 8.

1. A prism has 20 vertices and 30 edges. Use V − E + F = 2 to find F.

2. A prism has 6 vertices and 9 edges. Use V − E + F = 2 to find F.

3. A prism has 8 vertices and 12 edges. Use V − E + F = 2 to find F.

4. A prism has 10 vertices and 15 edges. Use V − E + F = 2 to find F.

5. A prism has 12 vertices. How many sides does each base have?

6. A prism has 16 vertices. How many sides does each base have?

7. Diagnose an error. A prism has 20 vertices and 30 edges. Use V − E + F = 2 to find F. A learner answers “13”. Give the correct answer and identify why the proposed answer fails.

8. Explain your choice. A prism has 6 vertices and 9 edges. Use V − E + F = 2 to find F.

Self-check after attempting: use the separate answer key on the skill page. Correct reasoning and a valid drawing matter as well as the final answer.

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Stage 06: Analyse a new package

Transfer & Solve

Show your working or construction on paper. State units where asked. For questions 7 and 8, explain your method. Numerical entries may be rounded to 2 decimal places.

Work on separate paper. Plot and label figures; retain compass arcs. Give a reason for items 7 and 8.

1. A closed gift box is a 3-gonal prism. A net needs one panel per face. How many panels are required?

2. A closed gift box is a 4-gonal prism. A net needs one panel per face. How many panels are required?

3. A closed gift box is a 5-gonal prism. A net needs one panel per face. How many panels are required?

4. A closed gift box is a 6-gonal prism. A net needs one panel per face. How many panels are required?

5. A prism has 16 vertices and 24 edges. Use $V - E + F = 2$ to find F.

6. A prism has 20 vertices and 30 edges. Use $V - E + F = 2$ to find F.

7. Diagnose an error. A closed gift box is a 3-gonal prism. A net needs one panel per face. How many panels are required? A learner answers “6”. Give the correct answer and identify why the proposed answer fails.

8. Explain your choice. A closed gift box is a 4-gonal prism. A net needs one panel per face. How many panels are required?

Self-check after attempting: use the separate answer key on the skill page. Correct reasoning and a valid drawing matter as well as the final answer.

Mr. Devonish