# Classifying a loading bay

Coordinate proof | coordinates

Name _____ Date _____

A loading bay has vertices A(0,0), B(6,0), C(8,4), D(2,4), in that order.

1. Use slopes to prove a parallelogram.

2. Decide whether it is a rectangle using an independent calculation.

3. Decide whether it is a rhombus. State the condition tested.

Use evidence and show the relationships in your reasoning. Additional paper is permitted.

# One observation cannot prove congruence

Congruence and argument | counterexample

Name _____ Date _____

Two triangles each have a pair of sides of lengths 5 and 7. Their included angles measure 40 degrees and 70 degrees.

1. Does the supplied information prove congruence? Explain.

2. State a change that would make SAS applicable.

3. Describe a rigid-motion property supporting the conclusion.

Use evidence and show the relationships in your reasoning. Additional paper is permitted.

# Two similar ramps

Similarity and trigonometry | scaled right triangles

Name _____ Date _____

Ramp A rises 0.6 m over a horizontal run of 4.8 m. Ramp B is similar and rises 0.9 m.

1. Find B's horizontal run.

2. Find the incline angle of A to the nearest degree.

3. Explain whether similarity alone guarantees either ramp meets an unspecified access rule.

Use evidence and show the relationships in your reasoning. Additional paper is permitted.

# Sector signs

Circles and measurement | arc and area

Name _____ Date _____

Two circular signs use 60-degree sectors. Their radii are 3 cm and 9 cm.

1. Compute both arc lengths exactly.

2. Compute both sector areas exactly.

3. Explain the different scale factors.

Use evidence and show the relationships in your reasoning. Additional paper is permitted.

# An open cylinder

Volume and modeling | container decision

Name _____ Date _____

Two open-top cylinders have (radius,height) values (3,8) cm and (4,4.5) cm. Ignore thickness. Material area is pi*r^2+2*pi*r*h.

1. Show that the capacities match.

2. Compare the material areas.

3. State one modeling assumption that could change a practical choice.

Use evidence and show the relationships in your reasoning. Additional paper is permitted.

# Which transformations undo each other?

Transformations | coordinate rule

Name _____ Date _____

Apply T(x,y)=(x+4,y-2), then reflect across the x-axis.

1. Write the composite coordinate rule.

2. Apply it to P(-1,3).

3. Compare with reversing the order and explain whether order matters.

Use evidence and show the relationships in your reasoning. Additional paper is permitted.