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Homework Program

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Australian Curriculum



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Record sheet

Name: Class:



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Geometry 1



Skill sheet

14 [Find angle in parallel lines]	19 [Quadrilateral properties]
15 [Quadrilateral properties] $b + \frac{c}{1 + a} + 4 \text{ cm}$	For 20–24, answer true or false. 20 The diagonals of a rhombus meet at [Quadrilateral properties] 21 The diagonals of a rectangle meet at
7 cm	[Quadrilateral properties] - 22 [Quadrilateral - 22 [Quadrilateral
$\begin{array}{c} 16 \\ [Quadrilateral properties] \end{array} \qquad \qquad \begin{array}{c} & & & & \\ y & & & & \\ 115^{\circ} & & & \\ a & & & \\ & & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & & \\ & & & \\ & & & \\ & & & &$	properties] Opposite angles in a trapezium are [Quadrilateral properties] Opposite angles in a trapezium are 24 Both pairs of opposite angles in a kite [Quadrilateral properties] are equal.
	For 25–27, find the unknown angles in the diagram below, $y = x$
17 [Quadrilateral properties]	25 $x =[Find angle]26$ $y =[Find angle]$
	27 $z =$ [Find angle] - For 28–30 , find the value of the unknown angles in the following diagram, 40° b° c°
18 [Quadrilateral properties]	a = [Find angle] $a = $ [Find angle] $b = $ [Find angle] $a = $ [Find angle] $c =$
χ.	[Find angle]

Student comment	Guardian comment/signature	Teacher feedback

Geometry 2

Skill sheet







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Geometry 3

Skill sheet



15 [Congruent triangles	Prove that $\Delta JKL \equiv \Delta JML$. In Δ :	23 [Interpret information]	Label $WX = WZ$ and $XY = YZ$.
proot]	2 3	24 [Congruent triangles	Prove $\Delta WXY \equiv \Delta WZY$. In:
	.:.Δ	proof]	1
16 [Interpret information]	Mark pairs of equal angles in the congruent triangles on the diagram above.		3
17 [Interpret	$\angle KJL = $ (corresponding angles)	25 [Interpret proof]	So, ∠ <i>XWY</i> =
proot]	$\therefore KL$ is parallel to	26 [Interpret	Draw the diagonal XZ on the kite and label the point of intersection M Label
18 [Interpret	$\angle KLJ = $ (corresponding angles)	diagram]	the pair of equal angles on the diagram.
information]	$\therefore KL$ is parallel to	27 [Congruent triangles	Prove that $\Delta W X M \equiv \Delta W Z M$. In:
19 [Conclusion]	What has been proven?	proof]	1 2
20 [Conclusion]	From the given information, what type of quadrilateral is <i>JKLM</i> ?	28 (Miterpret proof)	XM = (corresponding sides)
21 [Conclusion]	If you were also told that $KL = JK$, what type of quadrilateral is $JKLM$?	29 [Conclusion]	What has been proven?
For 22–30, bisects the 22 [Interpret diagram]	show that one of the diagonals of a kite other. On the kite $WXYZ$ below, draw in the diagonal WY .	30 [Conclusion]	$\angle XMW = \angle ZMW$ (corresponding angles) = 90° (supplementary angles) What else does this prove about the diagonals of a kite?
	Z		

Student comment	Guardian comment/signature	Teacher feedback

Investigation

Quadrilateral properties





Student comment	Guardian comment/signature	Teacher feedback

Technology task—The Geometer's Sketchpad

Transformations and congruence

me:	Due date:///
The Geom this task, y demonstra	eter's Sketchpad can be used to transform triangles and other shapes on the Cartesian plane. In ou will transform a triangle by reflecting, rotating and translating it and use transformations to te that two triangles are congruent.
1 [The default	Follow these steps to use Geometer's Sketchpad to reflect, rotate and translate $\triangle ABC$ on the Cartesian plane.
lirection for otation is	• Open a new file, name and save it. Open the Graph menu and select Show Grid . Then select Snap Points on the Graph menu.
intereord interesting of the second sec	• Use the Line Segment tool to draw a triangle $\triangle ABC$ with coordinates $A(-8, 2), B(-6, 6), C(-2, 4)$. Label the points using the Text tool.
	• Use the Arrow tool to click on each vertex of the triangle and then open the Construct menu and select Construct Triangle Interior .
	• To reflect $\triangle ABC$ in the y-axis, double-click the y-axis to mark it as the mirror line. Then select $\triangle ABC$, open the Transform menu and select Reflect . The reflected image should appear.
	a What are the coordinates of the reflected image?
	• To rotate $\triangle ABC$ anticlockwise about point C by 90°, click on point C to mark it as the centre of rotation. Select the triangle. Open the Transform menu and select Rotate . Check Rotate By: Fixed Angle and enter 90. Then click on Rotate .
	 b What are the coordinates of the rotated image? To translate ΔABC+3 units horizontally and +4 vertically, select the triangle. Open the Transform menu, click on Translate, check Translation Vector: Rectangular, and enter 3 for horizontal fixed distance and 4 for vertical fixed distance. (The default grid is a 1 cm grid.) Then click on Translate.
	c What are the coordinates of the translated image ?
	ΔABC and its reflected, rotated and translated images are congruent triangles. Paste a copy of your sketch in the space below.

Follow these steps to demonstrate that $\triangle ABC$ and $\triangle DEF$ are congruent triangles.

- Open the **File** menu and click on **Document** options. Click on **Add Page**, **Duplicate: 1**. This should create a new page 2 in your document, which is a duplicate of the first page. On the new page, delete the transformed images. You should be left with ΔABC .
- Draw a triangle ΔDEF with coordinates D(0, 0), E(6, -2), F(2, -4). Label the points.
- Reflect $\triangle ABC$ in the *x*-axis.
- Now experiment with translating the reflected image so that it coincides with ΔDEF . (You should see a faint image before you click on **Translate**.)
- Describe the combination of transformations required to demonstrate that $\triangle ABC$ and $\triangle DEF$ are congruent.



Try this!

2 [An image

can be

as a constructed

shape.]

selected in

the same way

On a new document page, use a combination of reflection and rotation to transform $\triangle ABC$. Then select the final image and reverse the transformations to return the image to original location of $\triangle ABC$. Save your file.

Student comment	Guardian comment/signature	Teacher feedback