

Geometry Honors 8 1 Proportionality Geometric Mean and Arithmetic Mean

Lesson 085 | Geometry | Arithmetic and geometric means

<https://www.youtube.com/watch?v=4hpl9Suplzk>

Original practice aligned to the saved video title.

Name: _____ Date: _____ Show your reasoning.

01

Find the arithmetic mean and geometric mean of 49 and 100. Verify $AM \geq GM$.

02

Find the arithmetic mean and geometric mean of 25 and 144. Verify $AM \geq GM$.

03

Find the arithmetic mean and geometric mean of 81 and 36. Verify $AM \geq GM$.

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04

Find the arithmetic mean and geometric mean of 16 and 4. Verify $AM \geq GM$.

05

Find the arithmetic mean and geometric mean of 4 and 100. Verify $AM \geq GM$.

06

Find the arithmetic mean and geometric mean of 100 and 81. Verify $AM \geq GM$.

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01

Find the arithmetic mean and geometric mean of 49 and 100. Verify $AM \geq GM$.

$AM = (49 + 100)/2 = 149/2$; $GM = \sqrt{(49)(100)} = 70$. Difference = $(7 - 10)^2/2 = 9/2 \geq 0$.

02

Find the arithmetic mean and geometric mean of 25 and 144. Verify $AM \geq GM$.

$AM = (25 + 144)/2 = 169/2$; $GM = \sqrt{(25)(144)} = 60$. Difference = $(5 - 12)^2/2 = 49/2 \geq 0$.

03

Find the arithmetic mean and geometric mean of 81 and 36. Verify $AM \geq GM$.

$AM = (81 + 36)/2 = 117/2$; $GM = \sqrt{(81)(36)} = 54$. Difference = $(9 - 6)^2/2 = 9/2 \geq 0$.

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04

Find the arithmetic mean and geometric mean of 16 and 4. Verify $AM \geq GM$.

$AM = (16+4)/2 = 10$; $GM = \sqrt{(64)} = 8$. Difference = $(4-2)^2/2 = 2 \geq 0$.

05

Find the arithmetic mean and geometric mean of 4 and 100. Verify $AM \geq GM$.

$AM = (4+100)/2 = 52$; $GM = \sqrt{(400)} = 20$. Difference = $(2-10)^2/2 = 32 \geq 0$.

06

Find the arithmetic mean and geometric mean of 100 and 81. Verify $AM \geq GM$.

$AM = (100+81)/2 = 181/2$; $GM = \sqrt{(8100)} = 90$. Difference = $(10-9)^2/2 = 1/2 \geq 0$.