

Answers

for Grade 8 Group Assignments - Quarter #1

Notes for Parents:

- Answers for group assignment problems that are out of the workbook can be found in the “G8 Workbook Answer Key”.
- This answer key doesn’t include all answers.

Week 1-4

- All of these group assignments are out of the workbook.

Week 5

- The “Mystery Computer program” is an algorithm for generating prime numbers.

Week 6

- How many different nets are there for a cube? Answer: 11
- Question: *If I give you a random compass setting, how can you find a location on the page that is exactly that far (the given distance) from both the point and the line?*
One possible solution: Call the given line (fence), ℓ , the given point (tree), P, and the given distance (compass setting), x . Construct two lines (on opposite sides of the page) that are perpendicular to ℓ . On each of these lines mark a point that is a distance x from ℓ , and then draw a line, m , that connects these two newly marked points. Line m is now parallel to line ℓ , and a distance of x from ℓ . Now draw a circle using x as the radius (compass setting) and P as the center. This circle is a distance of x from P. The two points where the circle intersects line m , are the two desired points, which are equidistant from P and ℓ .

Week 7

For Thursday.

- *Loci Puzzle #1.* This is an ellipse.
- *Loci Puzzle #2.* This is a hyperbola.
- I’ll talk about both the ellipse and the hyperbola in the next lecture.

Week 8

Slicing a Triangle

We can divide an equilateral triangle into 4, 6, 3 and 2 congruent pieces. By combining these arrangements in various ways, we can also get 8, 12, 16, 24, 32, etc., congruent pieces. These numbers come from these sequences:

4^n (which gives us 1, 4, 16, 64...)

$2 \cdot 4^n$ (which gives us 2, 8, 32...)

$3 \cdot 4^n$ (which gives us 3, 12, 48...)

$6 \cdot 4^n$ (which gives us 6, 24, 96...)

Notice that 9, 18, 36, etc., congruent pieces are not possible.

