

# AMESA 2026

## WORKSHOP

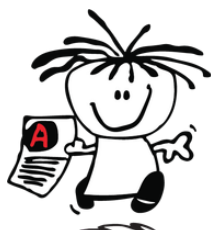
GeoGebra: Geometry  
 desmos: Graphs

Senior Phase & FET



for workshop

[www.theanswer.co.za](http://www.theanswer.co.za)



THE  
**ANSWER**  
SERIES *Your Key to Exam Success*



Desmos Graphing  
Calculator



GeoGebra  
Calculator

**TAS**



The Answer Series  
Website



TAS Senior Phase  
Community page



TAS FET  
Community page



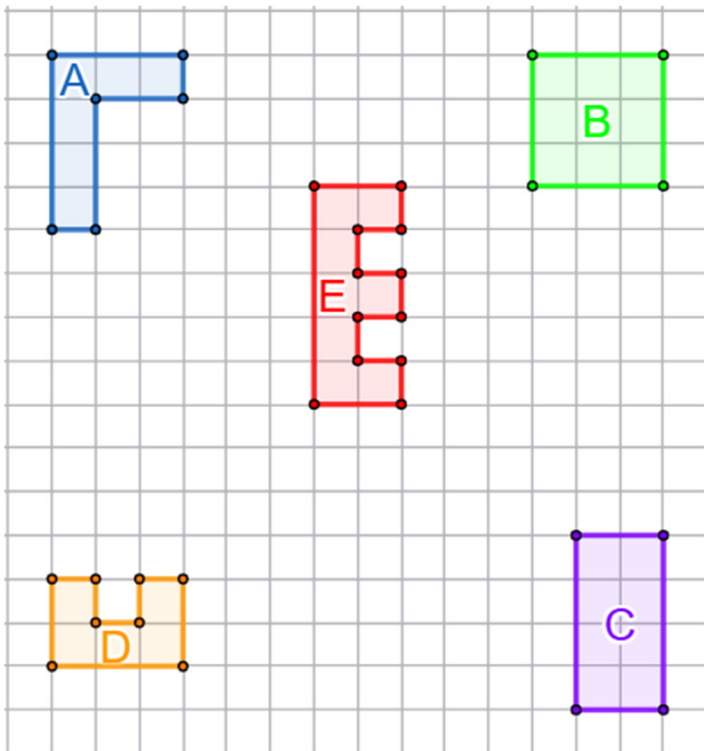
TAS FS  
Community page

# Worksheets with Diagrams & Links & QR Codes

## GeoGebra and Transformations

### Translations

Extracted from p. 111 of The Answer Series  
Grade 7 Mathematics  
3-in-1 Class Text & Study Guide

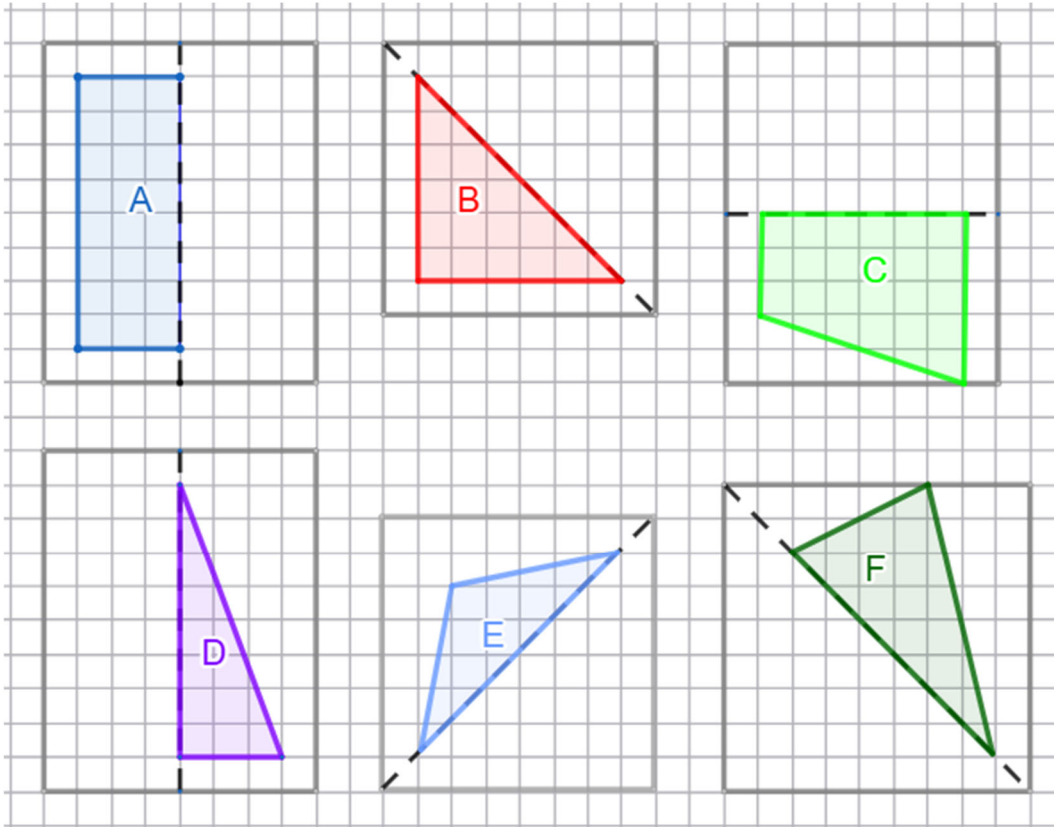


1. **Translate** shape **A** 4 units right and 1 unit down to form image **A'**.
2. **Translate** shape **B** 2 units left and 4 units down to form image **B'**.
3. **Translate** shape **C** 3 units left and 2 units up to form image **C'**.
4. **Translate** shape **D** 5 units right and 3 units up to form image **D'**.
5. **Translate** shape **E** 6 units left and 3 units down to form image **E'**.



## Reflections

Extracted from p. 115 of The Answer Series  
Grade 7 Mathematics  
3-in-1 Class Text & Study Guide

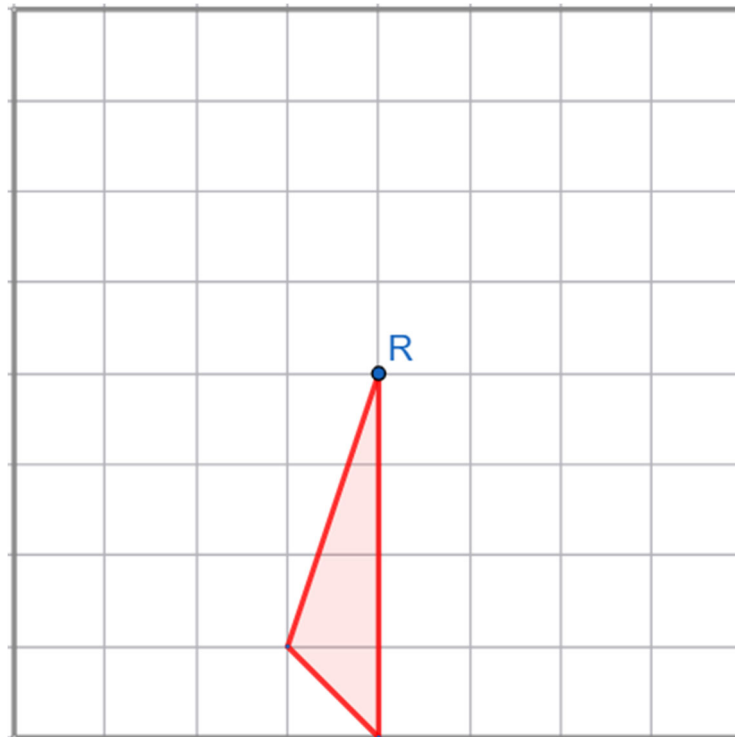


3. In each of the figures below:
- **Reflect** the given shape in the line **MN**.
  - Classify the shapes formed by the combination of the given shape and its reflection.
4. Go back to your answers to Question 3.  
Each combined quadrilateral has MN as a symmetry line.  
Some of the combined quadrilaterals have other symmetry lines as well.  
Add in as many additional symmetry lines as you can find.  
(Use dashed lines for the symmetry lines you add to your sketches.)

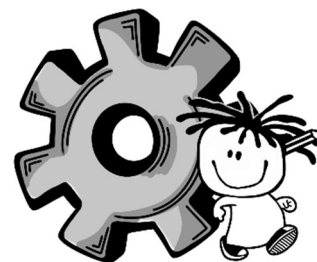


## Rotations

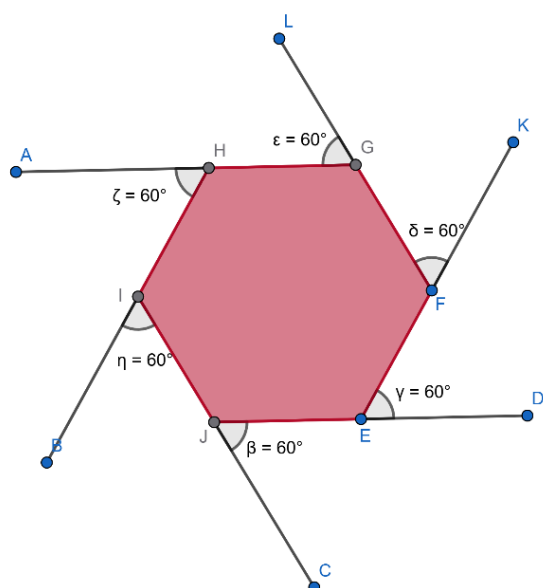
Extracted from p. 114 of The Answer Series  
Grade 7 Mathematics  
3-in-1 Class Text & Study Guide



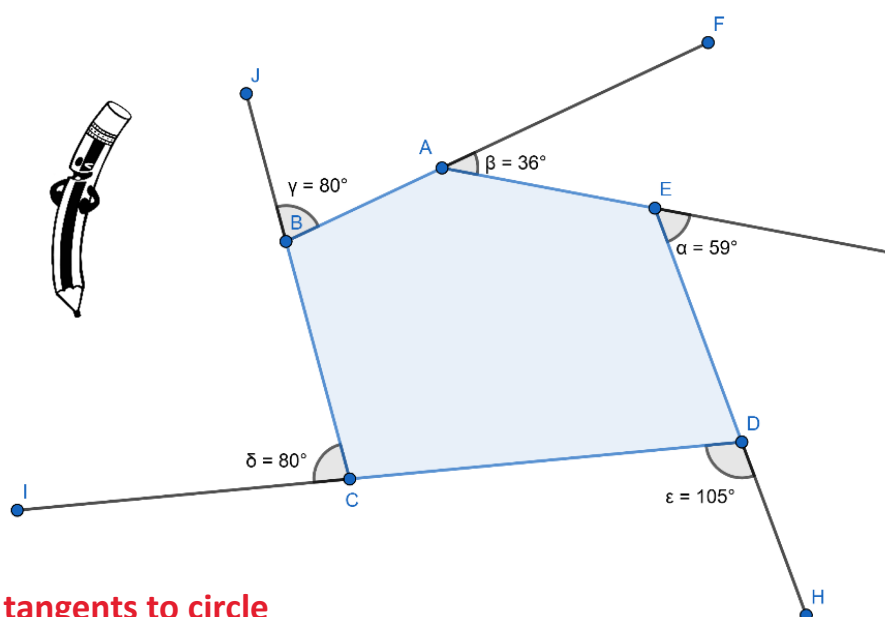
- 2.5 **Rotate** shape **D** about point **R**:
- 2.5.1 **180°** to form image **D'**.
  - 2.5.2 **90°** clockwise to form image **D''**.
  - 2.5.3 **270°** clockwise to form image **D'''**.



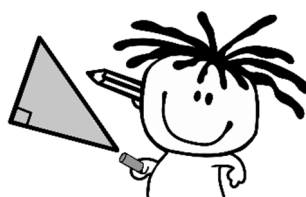
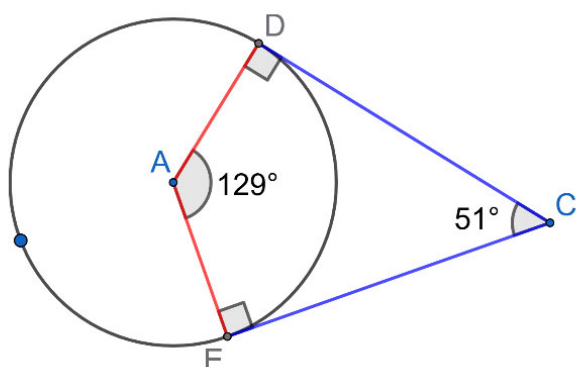
## regular hexagon



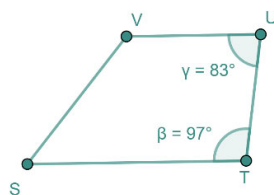
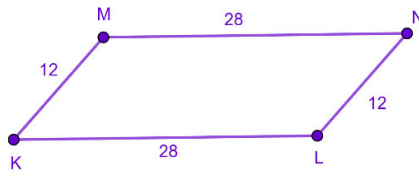
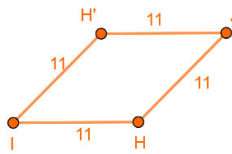
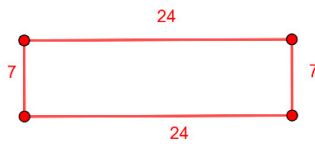
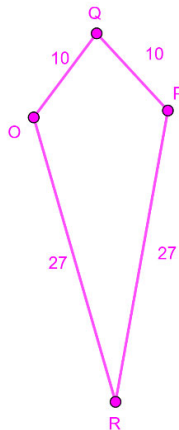
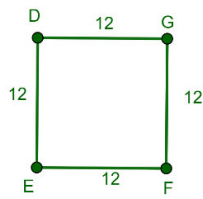
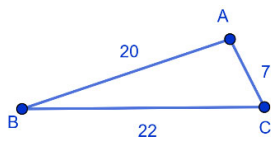
## sum of exterior angles of irregular polygon



## tangents to circle

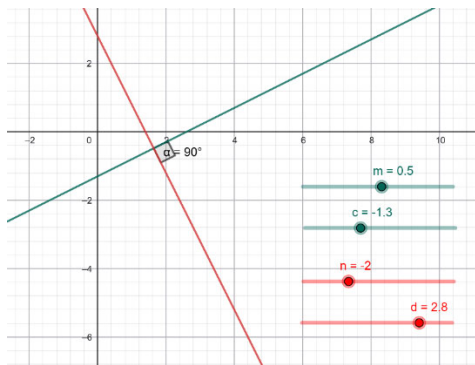


## Exploring midpoints

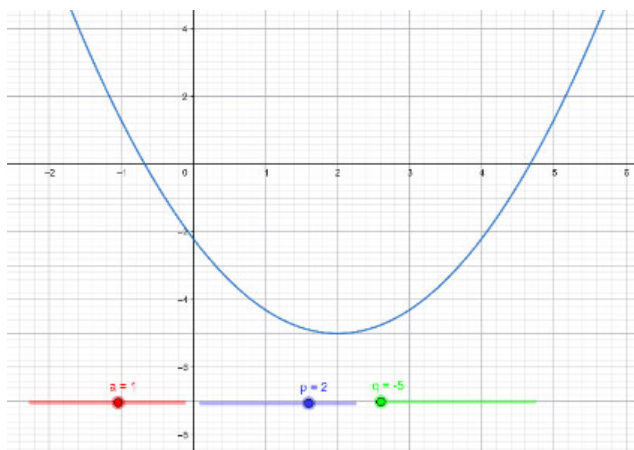


## GeoGebra and Graphs

### parallel and perpendicular lines



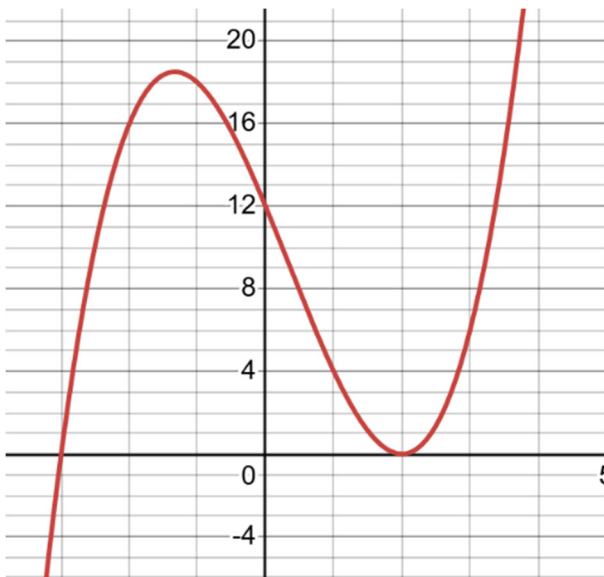
### parabola with parameters



## Desmos and Graphs



### Cubic graph with only one root



Extracted from p. 31 of The Answer Series Grade12  
2-in-1 Test and Exam Preparation Study Guide



17. The sketch graph shows the curve of  $f(x) = x^3 - x^2 - 8x + 12$ .

The curve has a y-intercept at (0; 12) and turning points at (2; 0) and B.

The point A is an x-intercept.

17.1 Calculate the coordinates of A. (5)

17.2 Calculate the x-coordinate of B. (4)

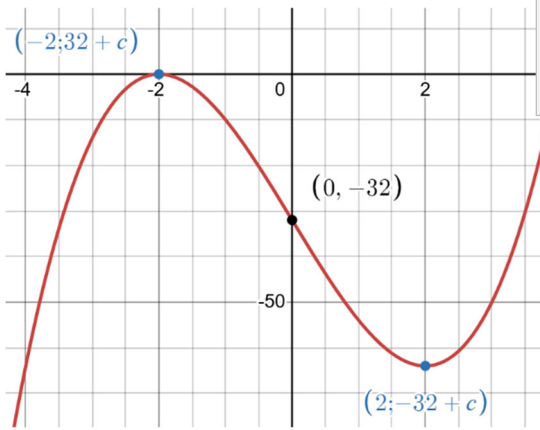
17.3 Write the values of  $x$  for which  $f'(x) > 0$ . (3)

17.4 If  $k < 0$ , how many real roots will the equation  $x^3 - x^2 - 8x + 12 = k$  have? (2)

17.5 Calculate the coordinates of the point of inflection. (4)



## Cubic graph with unknown c value

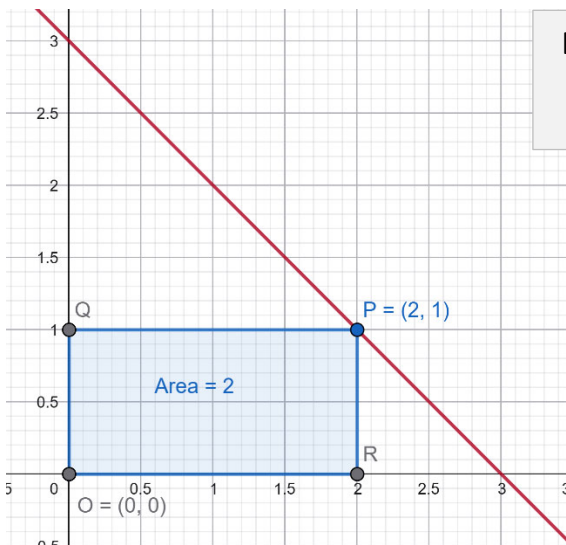


Extracted from P. 31 of The Answer Series Grade12  
2-in-1 Test and Exam Preparation Study Guide



- 13.1 Find the coordinates of the turning points, in terms of  $c$ , of the curve defined by  $f(x) = 2x^3 - 24x + c$ . State with respect to each point, whether the point is a local minimum or a local maximum value. (8)
- 13.2 For what values of  $c$  does  $f(x) = 0$  have three real roots? (3)

## Maximising the Area of a Rectangle within a Triangle



Extracted from P. 33 of The Answer Series Grade12  
2-in-1 Test and Exam Preparation Study Guide



11. Rectangle PQOR is inscribed in  $\triangle AOB$  where O is the origin.  
The coordinates of A, B and P are (3; 0), (0; 3) and (x; y) respectively.

Show that:

- 11.1  $y = -x + 3$  (3)
- 11.2 the area of the rectangle PQOR is  $-x^2 + 3x$  (2)
- 11.3 the maximum area of rectangle PQOR is half the area of  $\triangle AOB$  (2)



## Helpful Videos covering GeoGebra Basics

### Math 235 Basics of GeoGebra Helpful Video

This video shows the basic of GeoGebra classic which lays a great foundation.



### An Introduction to GeoGebra Software for Teaching Math

The last part of the video shows you how to access resources within GeoGebra.



### GeoGebra Tutorial – Building an Interactive Worksheet

This presentation will guide you through a step-by-step process for creating an interactive GeoGebra worksheet. The worksheet will provide students with an interactive problem for which they can change the parameters, solve it multiple times and check their answers.



## Helpful Videos covering Desmos Basics

### [Getting-Started-Desmos-Graphing-Calculator](#)



### [Getting-Started-Desmos-Geometry](#)



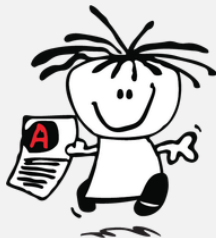
### [Learn Desmos with Ease: The Ultimate Beginner's Guide!](#)

This link takes you to YouTube and gives you easy access to multiple short videos on Desmos basics.





*Thank You*



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