



2019 TRAINING WORKSHOP NO.1 MATHEMATICS



GRADES 10-12



education

Department:

Education

PROVINCE OF KWAZULU-NATAL

FET

Just-in-Time Training Workshop

2019: No. 1

Pre/post Workshop Activity Memo

Mathematics



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what I do matters

Endorsed by:



FET MATHS: JIT WORKSHOP 1 OF 2019

SOLUTIONS: PRE-WORKSHOP ACTIVITY

1. **Summative assessment** is the type of activity given to a learner to assess their abilities without analysing their performance. The main purpose is to obtain a set of results for the task for report purposes. An example is the end-of-year exams.
Formative assessment is the type of activity given throughout the year. Marks are obtained and recorded, but the teacher will help the learner to analyse what they did correctly or incorrectly so that the learner can learn from their correct or incorrect answers.
2. Trigonometric graphs are first introduced in Grade 10. The only transformations involved are the change in amplitude and vertical shifts. The transformations done in Grade 11 are changes in periods and horizontal shifts. Relevant combinations of transformations are done in both grades. Generally, trig. graphs are not taught in Grade 12 – however questions on them should be practiced, especially those involving compound angles.
3. Small trig. test: (Multiple choice Questions 1 to 4)

QUESTION ONE – B

QUESTION TWO – A

QUESTION THREE – B

QUESTION FOUR – B

QUESTION FIVE: Actual answer: 7,5

Detailed solutions to small trig. test:

Question One:

The graph f has been reflected about the x -axis and stretched by a factor of 2. This is followed by a vertical shift of $\frac{1}{2}$. This applies to the graph of B.

Question Two:

$$\frac{\cos(180^\circ + \theta) - \cos(-\theta)}{\cos(90^\circ + \theta) + \sin(-\theta)}$$

$$= \frac{-\cos\theta - \cos\theta}{-\sin\theta - \sin\theta} = \frac{-2\cos\theta}{-2\sin\theta} = \frac{1}{\tan\theta} \quad \text{A.}$$

Question Three:

$$\begin{aligned} & \cos 0^\circ + \cos 30^\circ + \cos 60^\circ + \cos 90^\circ + \cos 120^\circ + \cos 150^\circ \\ &= 1 + \frac{\sqrt{3}}{2} + \frac{1}{2} + 0 - \cos 60^\circ - \cos 30^\circ \\ &= 1 + \frac{\sqrt{3}}{2} + \frac{1}{2} + 0 - \frac{1}{2} - \frac{\sqrt{3}}{2} \\ &= 1 \quad (\text{which is the same as } \sqrt{3}\tan 30^\circ = \sqrt{3} \times \frac{1}{\sqrt{3}} = 1) \quad \text{B.} \end{aligned}$$

Question Four:

$$\text{Area}\Delta ABD = \frac{1}{2}(8)(12)\sin 114^\circ = 43,85 \text{ units}^2$$

$$\hat{C} = 66^\circ \text{ (opposite angles of cyclic quad)}$$

$$\text{Area}\Delta BCD = \frac{1}{2}(15)(16)\sin 66^\circ = 109,63 \text{ units}^2$$

$$\frac{\text{Area}\Delta ABD}{\text{Area}\Delta BCD} = \frac{43,85}{109,63} = 0,3999 \dots \approx 0,4 = \frac{2}{5} \quad \text{which is B. } 2:5$$

Question Five:

$$\begin{aligned} \sum_{A=38^\circ}^{52^\circ} \cos^2 A &= \cos^2 38^\circ + \cos^2 39^\circ + \cos^2 40^\circ + \dots + \cos^2 45^\circ + \dots + \cos^2 50^\circ \\ &\quad + \cos^2 51^\circ + \cos^2 52^\circ \\ &= \cos^2 38^\circ + \cos^2 39^\circ + \cos^2 40^\circ + \dots + \cos^2 45^\circ + \dots + \sin^2 40^\circ + \\ &\quad \sin^2 39^\circ + \sin^2 38^\circ \\ &= 1 + 1 + 1 + 1 + 1 + 1 + 1 + \cos^2 45^\circ \\ &= 7 + \left(\frac{\sqrt{2}}{2}\right)^2 \\ &= 7\frac{1}{2} \end{aligned}$$