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Courses » Elementary Stereology for Quantitative Metallography

Announcements **Course** Ask a Question Progress Mentor FAQ

Unit 6 - Week 4

Course outline

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Pre-requisite Assignment

[Week 1](#)[Week 2](#)[Week 3](#)**Week 4** Counting of Grains and Particles Part 3 Counting of Grains and Particles Part 4 Other Applications of the Disector Stereology of Anisotropic Microstructures WEEK 4 - FEEDBACK - Elementary Stereology for Quantitative Metallography Quiz : Assignment 4

Assignment 4

The due date for submitting this assignment has passed.

As per our records you have not submitted this **Due on 2018-09-12, 23:59 IST.** assignment.

1) From a rolled polycrystalline microstructure, the P_L values (in arbitrary units) for several observations taken by a varying direction linear probe is given below (θ is measured in degrees from rolling direction) :-

$P_L(\theta)$	11.1	20.5	22.7	28.6	31.2	30.9	27.6	24.1	18.7	11.9
Angle θ	0	20	40	60	80	100	120	140	160	180

Estimate the total grain boundary length per unit area. Provide the answer correct up to two decimal points. (Hint: Use Excel to generate the regression line and obtain the equation)

No, the answer is incorrect.

Score: 0

Accepted Answers:

(Type: Range) 36.500,39.000

2 points

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Accepted Answers:
(Type: Range) 49.0, 51.0

1 point

3) Fill in the blanks:

Relative grain boundary energies at triple edges are calculated using _____ equations.

No, the answer is incorrect.
Score: 0

Accepted Answers:
(Type: String) youngs
(Type: String) young's

0.5 points

4) Fill in the blanks:

_____ are used instead of linear probes in the form of a grid of parallel lines in order to obtain an average intercept length for oriented polycrystalline microstructures.

Hint

No, the answer is incorrect.
Score: 0

Accepted Answers:
(Type: String) Circular probes
(Type: String) varying direction
(Type: String) varying direction linear probes

0.5 points

5) The extent of the orientation of grains in a polycrystalline microstructure is the sum of isotropic and oriented boundary lengths **0.5 points**

- True
 False

No, the answer is incorrect.
Score: 0

Accepted Answers:
False

6) A kind of linear probe used to measure intersections in all directions at equal intervals is the varying angle probe **0.5 points**

- True
 False

No, the answer is incorrect.
Score: 0

Accepted Answers:
True

7) A 3D space is sectioned by a dissector. The particles to be included in the count will be: **1 point**

- Those found only in the look up plane

- Those found only in the observation plane
- Those found in both the observation and look up plane
- All of the above

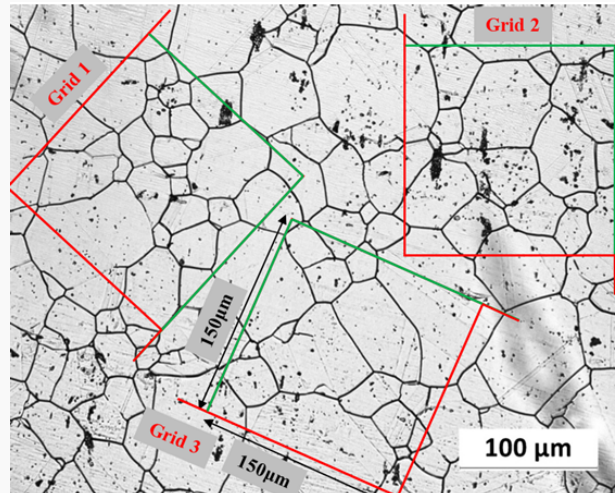
No, the answer is incorrect.

Score: 0

Accepted Answers:

Those found only in the observation plane

8) The 95% confidence interval for the no. of grains per unit area (using the three masks given **1 point** below) is approximately:



- 5.5 to 6.0
- 6.5 to 7.0
- 7.5 to 8.0
- 8.5 to 9.0

No, the answer is incorrect.

Score: 0

Accepted Answers:

6.5 to 7.0

9) Figure shows the indent formed by a Vickers indenter. Diagonal lengths of the two indents **1 point** are: $D_1 = 850 \mu\text{m}$ and $D_2 = 148 \mu\text{m}$. The disector thickness will be approximately:

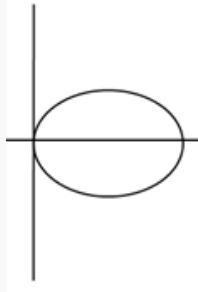
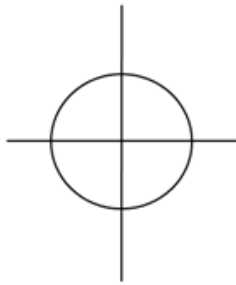
S_1 first section

S_2 second section

50 μm
 100 μm
 150 μm
 200 μm

No, the answer is incorrect.
Score: 0
Accepted Answers:
 100 μm

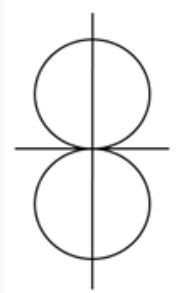
10) Which of the following is the correct polar plot for the completely oriented components? **1 point**



No, the answer is incorrect.

Score: 0

Accepted Answers:



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