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Courses » Virtual Reality Engineering

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## Unit 7 - Week 5

### Course outline

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- Introduction to Psychophysics
- Psychophysics of human vision
- Psychophysics of human color perception
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- Quiz : Assignment 5
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### Assignment 5

The due date for submitting this assignment has passed. **Due on 2018-02-28, 23:59 IST.**

#### Submitted assignment

1)

1 point

If, in an experiment, you found  $\Delta\phi$  to be 2.0 when  $\phi$  was 10.0, and you assumed the validity of Weber's law  $\Delta\phi = c\phi$ , what values of  $\Delta\phi$  would you expect of you if repeated the experiment for  $\phi$  was 3.0?

- 0.6
- 0.5
- 6
- 5

**No, the answer is incorrect.**

**Score: 0**

**Accepted Answers:**

0.6

2)

1 point

Experimentally determined values of  $\Delta\phi$  can seldom be accurately predicted from the equation  $\Delta\phi = c\phi$ . For example, the values of  $\Delta\phi$  presented below could represent the typical results of a discrimination experiment.

$\phi$	$\Delta\phi$
3.0	1.0
5.0	1.4
10.0	2.4
20.0	4.4
30.0	6.4

What is the average of the value  $c$  in Weber equation  $\Delta\phi = c\phi$ .

- 1.2
- 0.25
- 2.5
- 0.12

**No, the answer is incorrect.**

**Score: 0**

**Accepted Answers:**

0.25

3)

1 point

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In deriving his law, Fechner assumed Weber's equation,  $\Delta\phi = c\phi$  was correct. Assuming  $c$  to be 0.1, what is the values of  $\phi$  corresponding to the 2nd JND above an absolute threshold of 5.0.

- 6.65
- 5.5
- 6.05
- 5

No, the answer is incorrect.

Score: 0

Accepted Answers:

6.05

4)

1 point

If  $c = 0.2$  in the above problem, what is the values of  $\phi$  corresponding to the 2nd JND above an absolute threshold of 5.0.

- 5
- 7.2
- 8.64
- 6

No, the answer is incorrect.

Score: 0

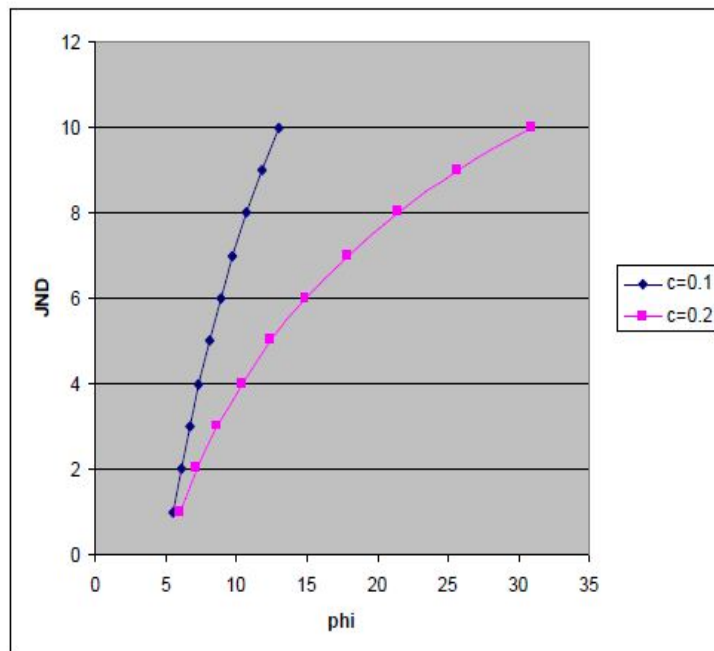
Accepted Answers:

7.2

5)

1 point

The following graph shows different JNDs in the above two problems with  $\phi$  for two different  $c=0.1$  and  $c=0.2$ . Convert the  $\phi$  values to logarithms and plot sensation magnitude as a function of  $\log \phi$ . What are the equations for the function obtained for the two values of  $c$  in the Weber equation.



- $\phi = 25 \cdot \psi - 17.5$  for  $c=0.1$   
 $\phi = 12.5 \cdot \psi - 8.5$  for  $c=0.2$

Log phi = 25\* log psi -17.5 for c=0.1  
 Log phi = 12.5\* log psi -8.5 for c=0.2

Log phi = 25\* psi -17.5 for c=0.1  
 Log phi = 12.5\* psi -8.5 for c=0.2

phi = 25\* log psi -17.5 for c=0.1  
 phi = 12.5\* log psi -8.5 for c=0.2

**No, the answer is incorrect.**

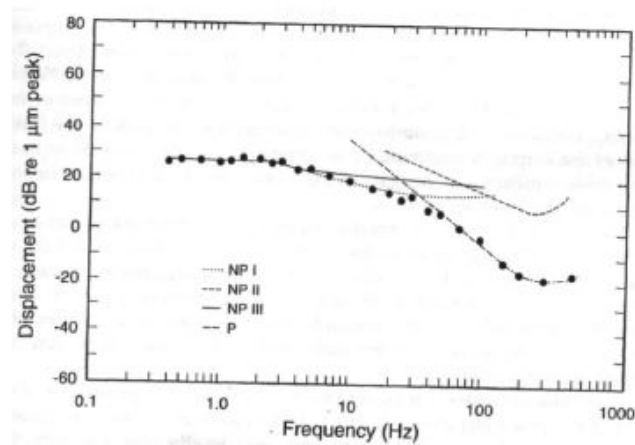
**Score: 0**

**Accepted Answers:**

*Log phi = 25\* psi -17.5 for c=0.1*

*Log phi = 12.5\* psi -8.5 for c=0.2*

- 6) The following curve describes the absolute thresholds for detecting vibration on the hand as a function of vibration frequency. Consider the plot with filled dots. What is the displacement required at the highest sensitive frequency. 1 point



- 250 Hz, -20db  
 250Hz, 0db  
 25Hz, 25 db  
 25Hz, 0 db

**No, the answer is incorrect.**

**Score: 0**

**Accepted Answers:**

*250 Hz, -20db*

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