

Speaker Financial Disclosure
Bob Alexander has no financial interests to disclose.

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Taking the Complication Out of Compensation
Why do are you changing the Rx?

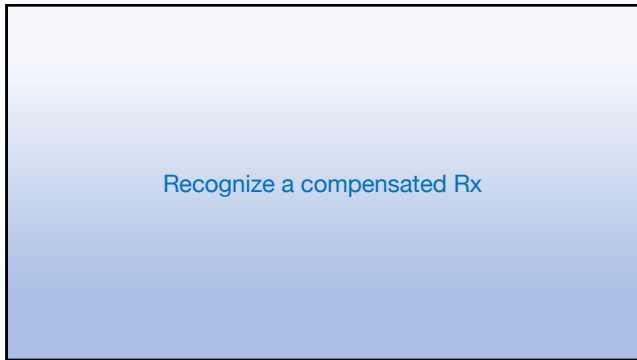
Can you give me the formulas so I can work it backwards to receive what I find in the refraction?

2

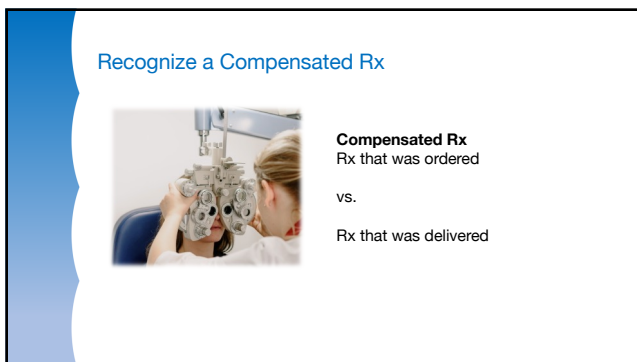
Objectives
At the end of this presentation, you will be able to:

- Recognize a compensated prescription and comprehend why it was performed
- Identify what frame fitting procedures can affect compensation
- Proper spectacle frame adjustments prior to obtaining fitting measurements for best compensation results

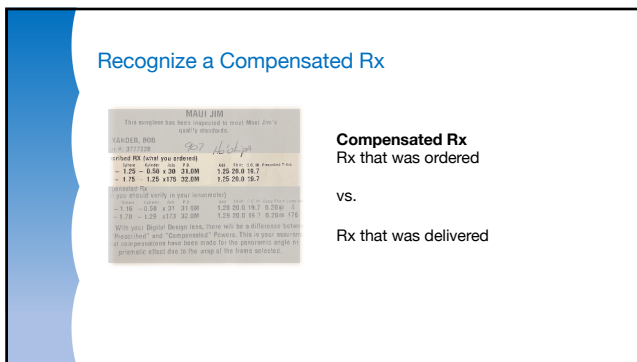
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Why is a compensation performed?


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Why was it performed?

Why does the Rx change?!

Or

Does it?



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Why was it performed?

Back Vertex Power
The reciprocal of the distance in air from the rear surface of the lens to the second principal focus.
Is used when measuring spectacle lenses.

Effective Power

1. The power of a lens at a designated position other than that occupied by the lens itself.
2. That power lens required for a new position that will replace the original reference lens and yet maintain the same focal point.

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Why was it performed?



- Fixed vertex
- 0° Pantoscopic Angle
- 0° Face Form
- Small lenses
- Looking through center

Glasses are prescribed like this . . .

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Why was it performed?



. . . but are worn like this.

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Why was it performed?

Back Vertex Power

The reciprocal of the distance in air from the rear surface of the lens to the second principal focus.

Is used when measuring spectacle lenses.

Back vertex formula - $1 / \text{distance (m)} = F (D)$

$1 / .25\text{m} = 4.00D$

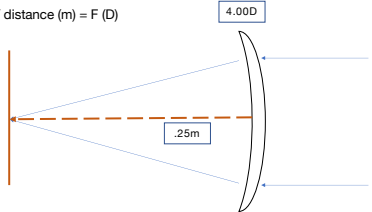
$1 / 4.00D = .25\text{m}$



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Why was it performed?

Back Vertex Power
Back vertex formula - $1 / \text{distance (m)} = F (D)$
 $1 / .25\text{m} = 4.00D$




The diagram shows a vertical line representing a lens on the left. A dashed horizontal line extends from the lens to the right, representing the optical axis. A curved line represents a lens surface on the right. A box labeled '4.00D' is positioned above the lens surface. A box labeled '.25m' is positioned below the optical axis, between the lens and the lens surface. Two blue lines representing light rays originate from a point on the optical axis to the left of the lens and converge at the lens surface.

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Why was it performed?

Effective Power

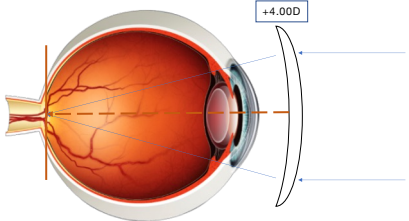
1. The power of a lens at a designated position other than that occupied by the lens itself.
2. That power lens required for a new position that will replace the original reference lens and yet maintain the same focal point.



The image shows a man with glasses looking at a tablet computer. He is resting his chin on his hand, appearing thoughtful.

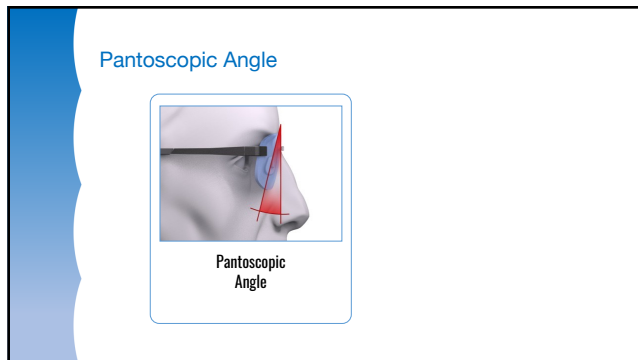
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Why was it performed?

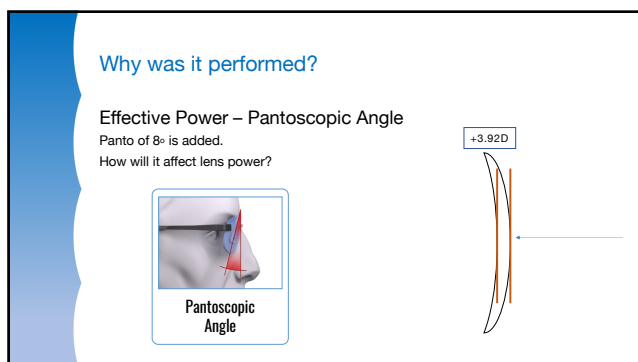


The diagram shows a cross-section of a human eye. A lens is positioned in front of the eye. A box labeled '+4.00D' is positioned above the lens. A dashed horizontal line represents the optical axis, passing through the center of the eye and the lens. Two blue lines representing light rays originate from a point on the optical axis to the left of the lens and converge at the lens surface.

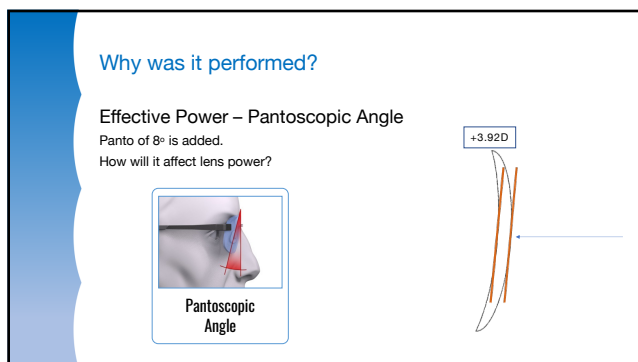
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Face Form (Wrap)

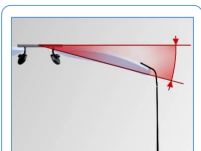


Wrap Angle (ZTILT)

The diagram shows a cross-section of a face form. A red line represents the wrap angle, which is the angle between the vertical normal and the surface of the wrap. The angle is labeled as ZTILT.

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Face Form (Wrap)




Wrap Angle (ZTILT)

Wrap Angle - Produces another concern.
What is it?

The diagram is identical to the one on slide 29, showing a cross-section of a face form with a red line representing the wrap angle, labeled as ZTILT.

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Induced Prism



The two diagrams show circular lenses with yellow lines indicating induced prism. The left diagram shows a lens with a vertical line and a diagonal line, representing induced prism. The right diagram shows a lens with a vertical line and a diagonal line, representing induced prism.

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Induced Prism

Induced Prism is dependent on:

- Angle of tilt
- Base Curve (BC)
- Index of refraction
- Lens thickness

Prism base direction is opposite of where light enters the lens compared to the optic axis.



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Theory – A supposition or a system of ideas intended to explain something, especially one based on general principles independent of the thing to be explained.

bing.com

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Theory

All formulas discussed use the 'thin lens formula'.

We don't dispense thin lenses.

Formulas can't be combined.

We cannot use 'thin lens formulas' to derive the same compensation models available by your lab.

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How frame fit affects compensation.

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Frame Fit

Do you know default measurements?

- Vertex
- Panto
- Wrap

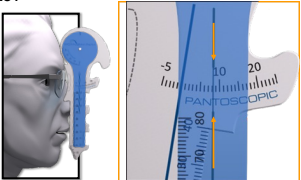
Are you providing actual measurements?

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Frame Fit

Complete adjustments prior to taking measurements

- Did you adjust for proper panto?

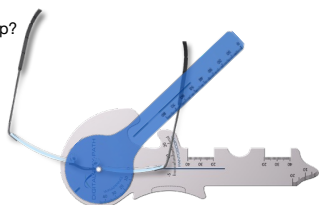


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Frame Fit

Complete adjustments prior to taking measurements

- Did you adjust for proper wrap?

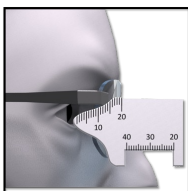


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Frame Fit

Complete adjustments prior to taking measurements

- Did you adjust for proper vertex?
- Do you know the refraction vertex?



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Troubleshooting

Adjustments during troubleshooting

- Panto
 - Effectively moves Fit Height
 - Induces cylinder at 180
- Faceform
 - Effectively moves PD
 - Induces cylinder at 090
 - Induces BO prism
- Vertex
 - Further than refraction = more plus power
 - Closer than refraction = less plus power

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What lens design are you using?

Are you using a dress wear design?

Or

Are you using a wrap design?

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