

# Decoding a glasses Rx

Let's take an average glasses prescription (Rx):

OD +2.25 - 0.75 x 090

OS +1.75 - 0.50 x 100

ADD +1.75

This Rx is for a farsighted person with astigmatism who needs a bifocal.

Now let's break this Rx down.

OD = Oculus Dexter = Right eye

OS = Oculus Sinister = Left eye

OU = Oculus Uterque = Both eyes

All Rx's are written with the right eye first and the left eye second.

If the doc is lazy, sometimes they won't even write OD or OS.

Even when the initials are not written, the right eye is always first.

The first number is the spherical power and tells you how much nearsightedness or farsightedness the patient has.

The spherical power will either have a (+) or a (-) written in front of it.

(+) stands for farsightedness and (-) stands for nearsightedness.

The higher the number, the stronger the power.

Our unit of measure is the **Diopter**, and we measure in **quarter** diopter steps.

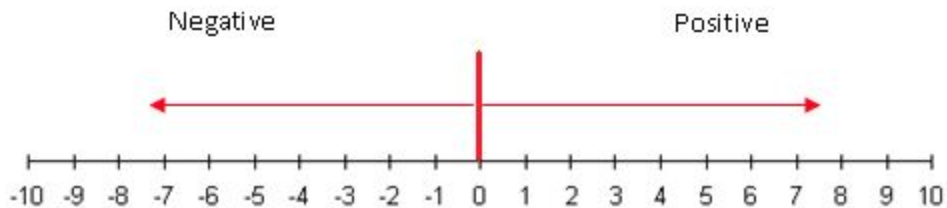
Think of the diopter as a dollar and the smallest change we have is a quarter.

There no pennies, nickels or dimes in optometry.

You will sometimes see the word "PLANO" or "PL" written.

In optical terms, this means Zero power.

You may see the term, Plano sunglasses, this means non-prescription sunglasses.



The second number is astigmatism.

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Again, our unit of measure is the Diopter and we measure in .25 steps.  
You always will see (-) sign in front of the astigmatism power (with optometrists).  
In the example Rx, the right eye has more astigmatism, (-0.75) than the left eye, (-0.50).

So you think you have this stuff mastered already, Huh ? Good, it doesn't get much more complicated.

You may also see a prescription written as:

PL - 0.75 X 90, and this means there is no nearsightedness or farsightedness in the prescription, just the astigmatism.

**The third number is the astigmatism axis.**

You will see an (X), this stands for axis.

The unit of measure here is degrees and is a measurement of orientation, not power.

The higher number doesn't mean it's stronger, it's just oriented differently.

We only use axis 1 to 180.

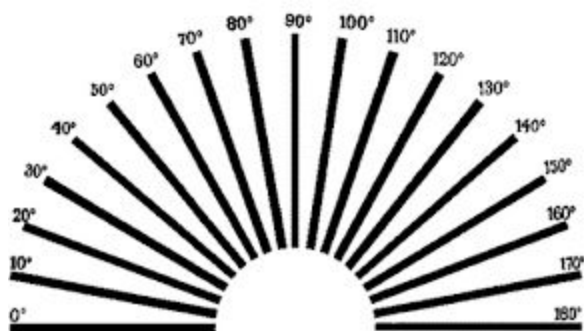
It is like a clock dial.

1:00 can be 1:00 am or 1:00 pm (or 13:00 in military time). In eyecare we only write the 1.

Axis 0 is the same as axis 180, but we will only use 180.

Axis 30 is the same as axis 210, but we only ever write 30.

## Astigmatism Axis



If you were to draw the other half, you would see that axis 10 is the same as axis 190.  
There is no need for both, so we only use axes up to 180.

This also shows why axis 10 and axis 170 are both very close to axis 180.

Always try to get as close to what is prescribed as possible.

Axis 90 is as far from axis 180 as you can possible get.

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If the Doctor has prescribed axis 90, pick something close to 90, such as 80, 85, 95 or 100. If the Doctor prescribes axis 180, then axis 5 is very close, as is 175 or even 170 or 10.

Not all prescriptions have astigmatism in them.

They will look like this -1.25 Sph or -1.25 DS (they mean the same)

or they will look like +1.75 Sph or +1.75 DS.

The “Sph” is an abbreviation for sphere, which is the term for a lens that doesn’t have astigmatism in it.

DS stands for diopter sphere.

DS and Sph are the same thing.

## **The last number is the bifocal power.**

The power for a bifocal is always, always, written in (+).

In the example Rxs, the +1.75 is the power of the bifocal.

Almost 100% of the time, the power of the bifocal on the right eye is the same as the left.

Therefore, you will only see the bifocal power written once.

You may see the word (ADD) which means additional power, which is what the Bifocal actually is.

Our unit of measure is the Diopter and we measure in (.25) steps.

When someone does not need a bifocal, the last number, or add, is simply left off.

Another term you will see used is Balance or abbreviated as Bal. This means that the eye where this term is noted does not see and we can put any Rx in front of it and it won’t make any difference. The word “balance” is used because all we want to do is balance the glasses with something that will look similar to the lens in the other eye.

### Example #2

OD -3.00 sph

OS -3.25 -0.50 X 180

The right eye has nearsightedness only.

The left eye has nearsightedness and astigmatism.

There is no add so the patient does not need a bifocal.

### Example #3

OD Plano -1.00 X 090

OS Plano

Add +2.50

The right eye has no nearsightedness, but has astigmatism

The left eye has no distance prescription at all

The patient needs a bifocal.

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Example #4

-2.75 sph

-3.25 sph

This is a lazy doctor writing a prescription for a patient whose both eyes are nearsighted, neither has astigmatism and the patient does not need a bifocal.

Example #5

Converting a bifocal prescription to a “reading only” prescription.

Remember that the “add” power is just that. It is added to the distance sphere power.

Also, remember your number line when adding plus and minus numbers.

OD -1.00 -0.50 X 090

OS +1.00 sph

Add +1.75

OD -1.00 is the sphere power. Add +1.75. Resultant is +0.75.

OS +1.00 is the sphere power. Add +1.75. Resultant is +2.75.

So the reading glasses would be

OD +0.75 -0.50 X 090

OS +2.75 sph

If you want to check your math, the difference between -1.00 and +1.00 is 2.00.

The difference between +0.75 and +2.75 is 2.00.

You are good.

## **NOW THAT YOU KNOW THE BASICS, HERE ARE SOME TIPS ON CHOOSING THE CORRECT GLASSES FOR SOMEONE:**

There will be many times we won't be able to give the patient exactly what he/she needs, but our goal is to get as close as we can.

In general, if we can't find the proper power, always give a weaker power.

Giving glasses that are too strong is worse than too weak.

This goes for nearsightedness, farsightedness, astigmatism power and bifocal power.

In astigmatism, always get as close to axis as you possibly can and remember that axis 1 is almost exactly the same as axis 180 and axis 5 is almost as close. Axis 175 is just as close to axis 180 as axis 5 is. Again, in astigmatism power, always give less than prescribed if you can't find the correct amount.

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ARE YOU READY FOR THE COMPLICATED STUFF?

Spherical equivalent is used to determine the overall power of a lens.

This concept is difficult at first but extremely helpful if you can get a handle on it.

It's used when the patient has some astigmatism and we really don't have an exact match for their prescription. When you cannot get the exact power you want for a patient, if you can get a lens with the same spherical equivalent, the patient will typically do pretty well.

Spherical equivalent = half of the astigmatism power added to the sphere power (now I lost you, right ? ).

You have to watch the power signs of + and - to calculate spherical equivalent.

**Let me give you some examples:**

+2.00 – 0.50 X 180 results is an overall power of +1.75 Sph.

$$-0.50 / 2 = -0.25$$

$$+2.00 + -0.25 = +1.75 \text{ (remember your number line)}$$

-2.25 – 1.00 X 90 results in an overall power of -2.75

$$-1.00 / 2 = -0.50$$

$$-2.25 + -0.50 = -2.75$$

If we haven't blown your mind with the spherical equivalent concept, here's where it actually gets useful.

You have a prescription of

$$+2.00 -1.00 \times 090$$

The overall power is

$$-1.00 / 2 = -0.50$$

$$+2.00 + -0.50 = +1.50$$

So, let's say you have a lens that is

$$+1.75 -0.50 \times 090$$

The overall power is

$$-0.50 / 2 = -0.25$$

$$+1.75 + -0.25 = +1.50.$$

These two prescriptions have the same overall power.

So, in a pinch, and in order of preference,

If the prescription is +2.00 -1.00 X 090, you could give

+2.00 -1.00 X 090 or

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+1.75 -0.50 X 090 or  
+1.50 sph

They all have the same overall power.

You will notice that the astigmatism axis (when present) did not change because that is a measure of orientation and not power.

These are the basics for working in the dispensary at a VOSH clinic. It may seem overwhelming, but really it isn't. Feel free to ask questions at any time. But don't worry, after a few hours of actually doing it, you'll be a pro.

***Best of luck to you and thanks so very much for caring enough for your fellow man to volunteer to work on a VOSH Mission.***