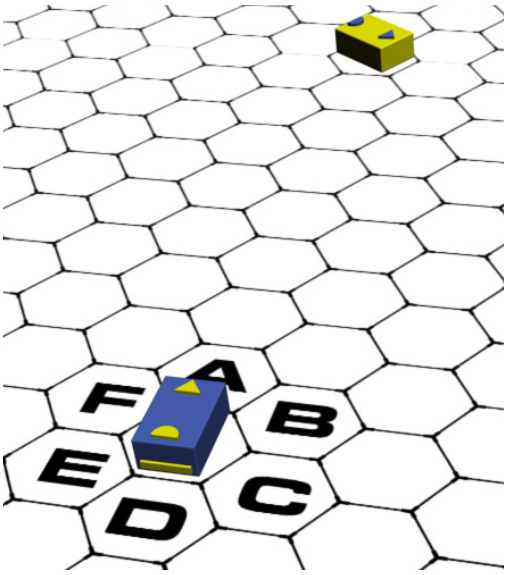
(D3.0) ITERATIVE BEARING AND FIRING ARC TUTORIAL:

These following examples break down shooting a bearing as a set of distinct steps from mapping it to a firing arc. We recommend working through each example on a hex map. The first six examples build off of one another. All of the Firing Arc Diagrams consists of the Nose window, and all windows adjacent to it. See the bottom illustration at right.

D

(D3.1) BEARING AND FIRING ARC EXAMPLE #1:



(D3.11) SETUP: Put your ship in hex 1210, facing direction A and flat on the map. Copy the AVID below for your ship's orientation, but don't copy the number 8 onto your AVID card; that will be filled in through the example. Put the target in hex 1202. It is at altitude zero, and is facing C, level with the map.

(D3.12) SHOOTING A BEARING:

Q) Do we see the target through a hex edge or hex corner?

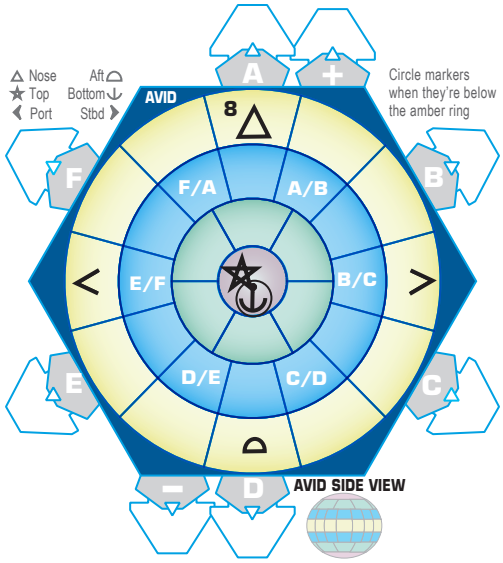
A) The target is 8 hexes in Direction A and 0 hexes in Direction F (or B). 8 is greater than 3 x 0, so the target is visible through Facing A, rather than A/B or F/A.

Q) What's the difference in altitude? What's the horizontal distance?

A) The altitude difference is 0; the horizontal distance is 8.

Q) Which AVID ring contains the target marker?

A) Because their altitude is the same, it's in the Amber ring. The range is 8. Mark it—put a target marker (shown by the number 8) in the amber window facing direction A. Our ship's Nose marker is also in this AVID window.



(D3.13) MAPPING IT TO A FIRING ARC DIAGRAM:

Q) How many windows separate the target marker from the Top marker on the AVID?

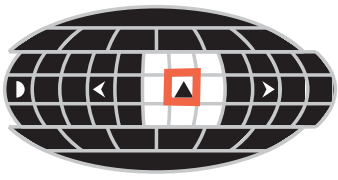
A) Counting from the Top of our ship, we go from the purple window to the green ring (one window), then from the green ring to the blue ring (two windows), and from the blue ring to the amber ring (three windows, for three total).

Q) Which orientation marker is closest to the target marker? How many windows separate the orientation and target markers, and in which direction is the offset?

A) It's closest to the Nose marker, and there are zero windows separating them.

Q) What window on the Firing Arc Diagram is the target marker in?

A) Counting three windows away from the Top of the Firing Arc Diagram puts the target in the middle row. Zero windows away from the Nose puts the target marker in the window with the Nose symbol.

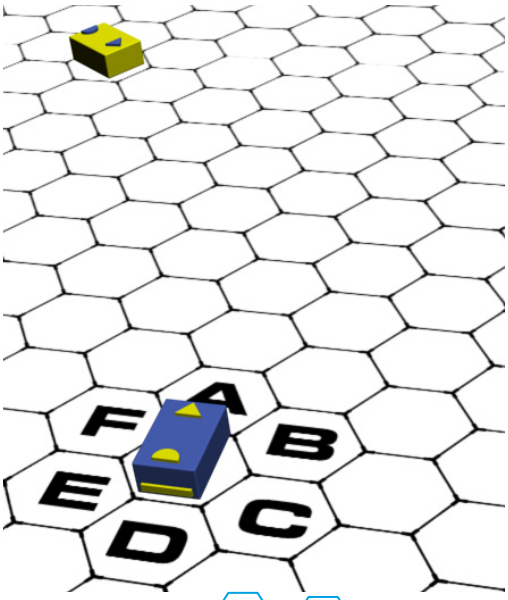


(D3.14) NOTES:

This example can be shortened to "The target marker is on the Nose symbol, I'm done." We walk through all of the steps to build familiarity for later examples.

(D3.2) BEARING AND FIRING ARC EXAMPLE #2:

(D3.21) SETUP: Shift the target to hex 0802, and keep it facing C, which puts it 10 hexes away. Everything else remains the same as Example #1.



(D3.22) SHOOTING A BEARING:

Q) Do we see the target through a hex edge or hex corner?

A) We see the target six hexes away in A and four hexes away in F, which makes it visible through the F/A hex corner. This means we see it in the slice of the AVID facing direction F/A, rather than A or F.

Q) What's the difference in altitude? What's the horizontal distance?

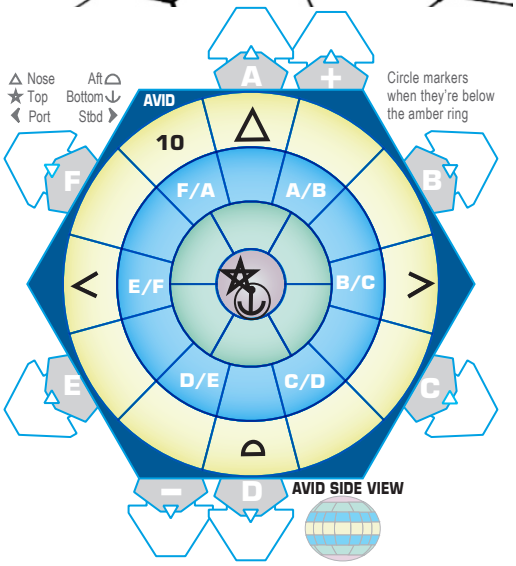
A) The altitude difference is 0; the horizontal distance is 10.

Q) Which AVID ring contains the target marker?

A) Because their altitude is the same, it's in the Amber ring. The range will be 10.

Mark it—put a target marker (shown by the number 10) in the amber window facing direction F/A. This is one window to the left of where our Nose marker is.

(D3.23) MAPPING IT TO A FIRING ARC DIAGRAM:



Q) How many windows separate the target marker from the Top marker on the AVID?

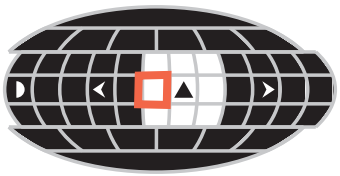
A) Counting from the Top of our ship, we go from the purple window to the green ring (one window), then from the green ring to the blue ring (two windows), and from the blue ring to the amber ring (three windows, for three total).

Q) Which orientation marker is closest to the target marker? How many windows separate the orientation and target markers, and in which direction is the offset?

A) It's closest to the Nose marker. It is one window away from the Nose marker, towards the Port marker of the ship, so it's one window away to the left.

Q) What window on the Firing Arc Diagram is the target marker in?

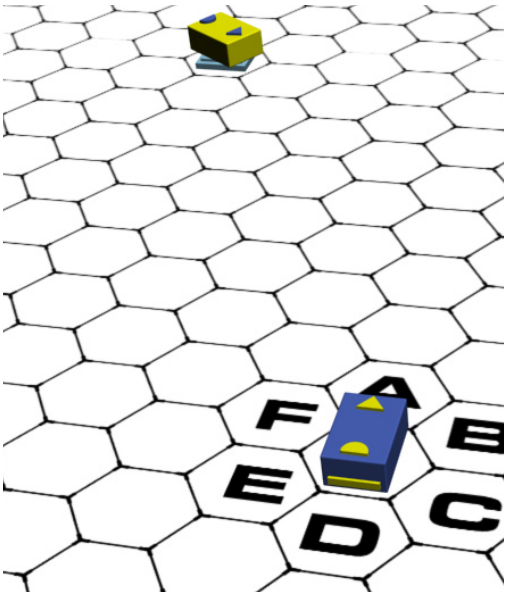
A) Counting three windows away from the Top of the Firing Arc Diagram puts us in the middle row. One window away from the Nose, to the left, puts the target marker in the Firing Arc Diagram window one window directly to the left of the Nose, shown in the Firing Arc Diagram here.



(D3.24) NOTES:

This is a simple variation of the first shot—the target is 30° over to the left. It's a bit unusual from the perspective of other hex map games in that we track bearings through the hex corner as well as hex edges.

(D3.3) BEARING AND FIRING ARC EXAMPLE #3:



(D3.31) SETUP: Keep the target in hex 0802, facing C, but put a light blue altitude tile (4 altitude) underneath it. Everything else remains the same as Example #2.

(D3.32) SHOOTING A BEARING:

Q) Do we see the target through a hex edge or hex corner?

A) We see the target six hexes away in A and four hexes away in F, which makes it visible through the F/A hex corner. This means we see it in the slice of the AVID facing direction F/A, rather than A or F.

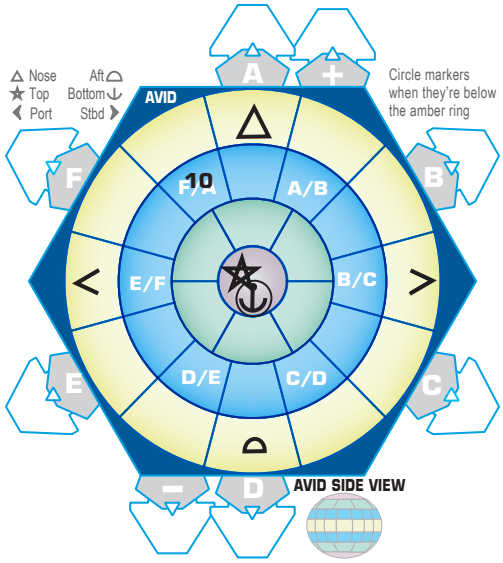
Q) What's the difference in altitude? What's the horizontal distance?

A) Difference in altitude is 4, horizontal distance is 10.

Q) Using the RALT, which AVID ring contains the target marker?

A) Looking out four altitude levels and ten hexes out, it's in the blue ring at a range of 10

Mark it—put a target marker (shown by the number 10) in the blue window facing direction F/A. This is one window to the left of where our Nose marker is and one window up towards the Top of the ship.



(D3.33) MAPPING IT TO A FIRING ARC DIAGRAM:

Q) How many windows separate the target marker from the Top marker on the AVID?

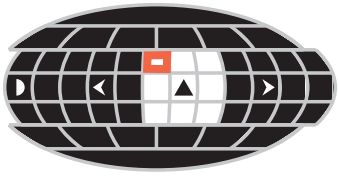
A) Counting from the Top of our ship, we go from the purple window to the green ring (one window), then from the green ring to the blue ring (two windows, for two total).

Q) Which orientation marker is closest to the target marker? How many windows separate the orientation and target markers, and in which direction is the offset?

A) It's closest to the Nose marker, one window up (towards the Top of the ship) and one window offset to the left, effectively it's one window diagonally up and to the left away from the Nose.

Q) What window on the Firing Arc Diagram is the target marker in?

A) Counting two windows away from the Top of the Firing Arc Diagram puts us one window above the middle row. One window away from the Nose, to the left, puts the target marker in the Firing Arc Diagram window diagonally above and to the left of the Nose, shown in the Firing Arc Diagram here. It's in the upper left corner of the firing arc.

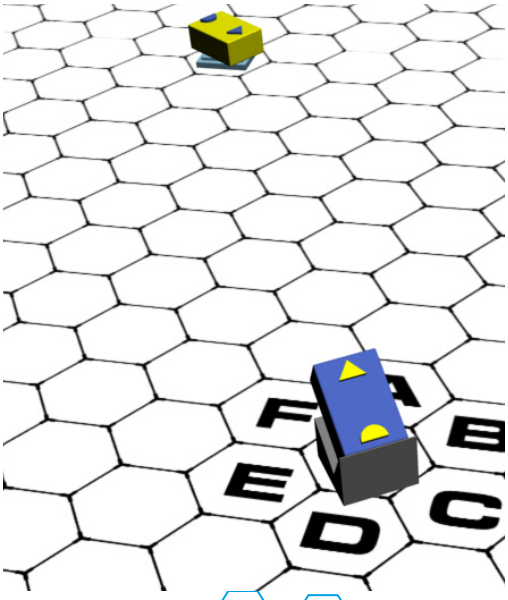


(D3.34) NOTES

This example is identical to the second example, except that the target's bearing has changed by one window above our ship.

(D3.4) BEARING AND FIRING ARC EXAMPLE #4:

(D3.41) SETUP: Keep the target in 0802 at altitude 4. Change the facing of your ship to F/A, with the Nose pitched up at a 30 degree angle (putting the Nose in the blue ring). See the AVID below for where to put the orientation markers if you're confused.



(D3.42) SHOOTING A BEARING:

Q) Do we see the target through a hex edge or hex corner?

A) We see the target six hexes away in A and four hexes away in F, which makes it visible through the F/A hex corner. This means we see it in the slice of the AVID facing direction F/A, rather than A or F.

Q) What's the difference in altitude? What's the horizontal distance?

A) Difference in altitude is 4, horizontal distance is 10.

Q) Using the RALT, which AVID ring contains the target marker?

A) Looking out four altitude levels and ten hexes out, it's in the blue ring at a range of 10

Mark it—put a target marker (shown by the number 10) in the blue window facing direction F/A. This is in the same window as the ship's Nose marker.

(D3.43) MAPPING IT TO A FIRING ARC DIAGRAM:

Q) How many windows is the target's bearing from the Top of our ship?

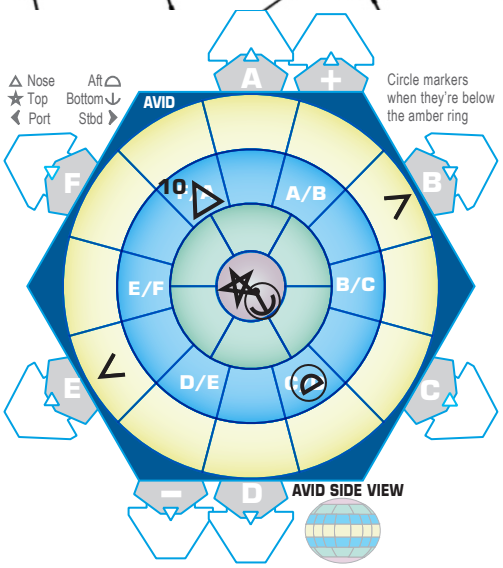
A) Counting from the Top of our ship, we go from the green ring to the purple window (one window), then from the purple window to the green ring on the other side (two windows), then from the green ring to the blue ring (three windows, for three total).

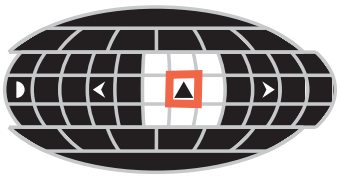
Q) Which orientation marker is closest to the target marker? How many windows separate the orientation and target markers, and in which direction is the offset?

A) It's closest to the Nose marker, and there are zero windows separating them.

Q) What window on the Firing Arc Diagram is the target marker in?

A) Counting three windows away from the Top of the Firing Arc Diagram puts us in the middle row. Zero windows away from the Nose puts the target marker in the Firing Arc Diagram window the Nose symbol is in.



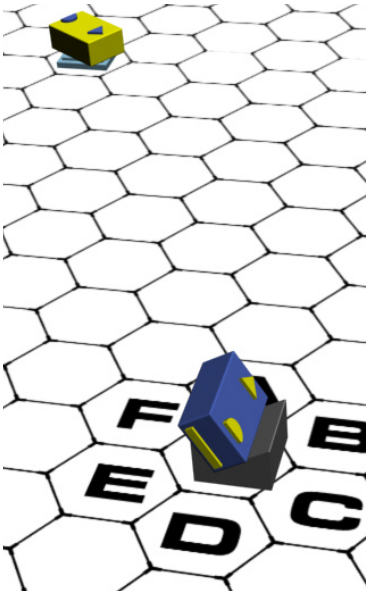


(D3.44) NOTES

You'll notice that the end firing arc mapping on this example is the same as the mapping for Example #1 (The bearing is the same as Example #3, which shouldn't be surprising as the target has not moved on the map). This is a good example of how the Firing Arc Diagram is fixed to the ship, while the AVID is fixed to the map. In effect, we have turned the ship to face the target.

This example has us turning our ship to point the Nose at the target; it just happens to be turning it 30 degrees to the left and up 30 degrees.

(D3.5) BEARING AND FIRING ARC EXAMPLE #5:



(D3.51) SETUP: Keep the target in 0802 at altitude 4. Change the facing of the ship to A, rolled to the right by 60 degrees. See the AVID below for the orientation markers.

(D3.52) SHOOTING A BEARING:

Q) Do we see the target through a hex edge or hex corner?

A) We see the target six hexes away in A and four hexes away in F, which makes it visible through the F/A hex corner. This means we see it in the slice of the AVID facing direction F/A, rather than A or F.

Q) What's the difference in altitude? What's the horizontal distance?

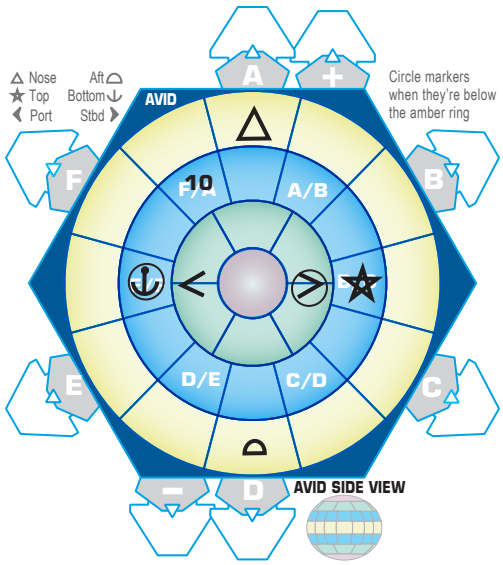
A) Difference in altitude is 4, horizontal distance is 10.

Q) Using the RALT, which AVID ring contains the target marker?

A) Looking out four altitude levels and ten hexes out, it's in the blue ring at a range of 10 Mark it—put a target marker (shown by the number 10) in the blue window facing direction F/A. This is one window away from the ship's Nose marker.

(D3.53) MAPPING IT TO A FIRING ARC DIAGRAM:

Q) How many windows is the target's bearing from the Top of our ship?



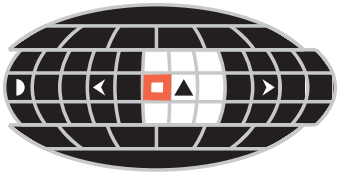
A) Counting from the Top of our ship, we go from the blue ring facing to the green ring facing B (one window), then from the green window facing B to the adjacent green window facing A (two windows), then from the green window in A back down to the blue window facing F/A (three windows, for three total).

Q) Which orientation marker is closest to the target marker? How many windows separate the orientation and target markers, and in which direction is the offset?

A) This is an ambiguous case; the target marker is one window away from our Nose marker, and either one or two windows away from the left side marker depending on which window of the green ring we count from. In ambiguous cases, the attacker chooses. We're better off choosing it as being closer to the Nose marker.

Q) What window on the Firing Arc Diagram is the target marker in?

A) Counting three windows away from the Top of the Firing Arc Diagram puts us in the middle row. One window away from the Nose to the left on the Firing Arc Diagram puts the target in arc.



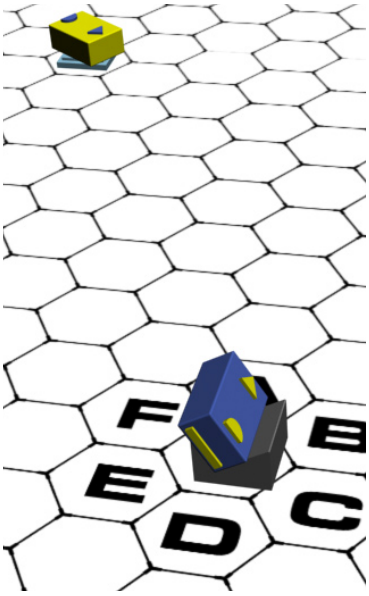
(D3.54) NOTES:

Counting from the Nose marker, it's one window away towards the Port side marker. This becomes one window from the Nose towards the Port—which is in our arc.

Counting one away from the Port marker, it's going towards the Nose indicator—but doesn't quite get into the firing arc.

Because of how the AVID embeds rounding errors, this results in two different windows that the target could be seen through. As the attacker, it's your choice.

(D3.6) BEARING AND FIRING ARC EXAMPLE #6:



(D3.61) SETUP: Now the target is shooting back and we're going to shift to its perspective, at the top of the map, shooting the ship at the bottom. It's still in hex 0802 at altitude 4, heading C. The ship being targeted is still in hex 1210, at altitude 0.

We'll be looking from the lighter colored box miniature at the darker one surrounded by letters. This is also why the AVID at the bottom of the page is the red one.

(D3.62) SHOOTING A BEARING:

Q) Do we see the target through a hex edge or hex corner?

A) We see the target four hexes away in C and six hexes away in D which makes it visible through the C/D hex corner. This means we see it in the slice of the AVID facing direction C/D, rather than C or D.

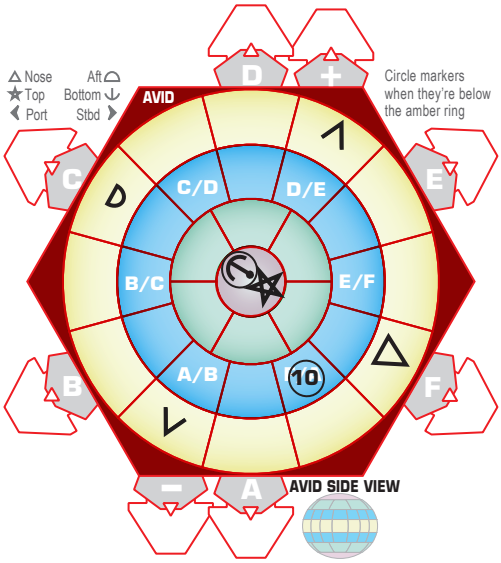
Q) What's the difference in altitude? What's the horizontal distance?

A) Difference in altitude is 4, horizontal distance is 10.

Q) Using the RALT, which AVID ring contains the target marker?

A) Looking out four altitude levels down and ten hexes out, it's in the lower blue ring at a range of 10 in direction C/D.

Mark it—we put the target marker in the blue ring in direction C/D, circled to show that it's below the plane of the map. Notice that this is the exact opposite of the bearing shot on the fifth example, which saw the target in F/A in the blue ring above the ship. This is what's meant by all bearings are reciprocal, and can be a great time saver when playing the game.

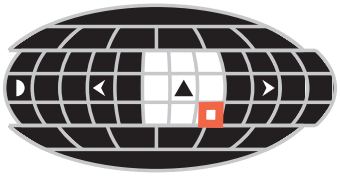


(D3.63) MAPPING IT TO AN INCOMING DAMAGE ARC:

Rather than map everything to an incoming firing arc, we're going to figure out what facing the other ship gets damaged on.

Q) How many windows is the target's bearing from the Bottom marker of our ship? (We can get the correct answer by counting away from either the Top marker the Bottom marker of the ship.)

A) Counting from the Bottom of our ship, we go from the purple window to the green ring (one window), and from the green ring to the blue ring (two windows total). We get the same result counting from the Top of the ship - we count to the green ring (one window) to the blue ring (upper) (two windows) to the amber ring (three windows) and then down to the lower blue ring (four windows).



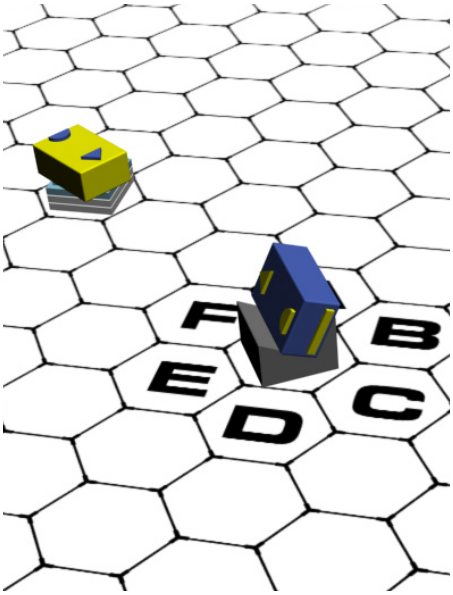
Q) Which orientation marker is closest to the target marker? Which facing of the ship will take the damage?

A) The Nose marker of the ship is one window away from the target marker. The weapon damage will hit the defenses covering the Nose facing of the ship. In any case where the incoming damage bearing is ambiguous (between two different facings), the attacker chooses which facing is hit.

(D3.64) NOTES:

This example, including determining which AVID window the incoming damage strikes through, gets built on extensively in the next rule section, (D4.0)

(D3.7) BEARING AND FIRING ARC EXAMPLE #7:



(D3.72) SETUP: Move the target to hex 1008 at altitude 7. Change the facing of your ship to F/A, rolled to the left by 60 degrees. See the AVID below for the correct orientation marker placement.

(D3.72) SHOOTING A BEARING

Q) Do we see the target through a hex edge or hex corner?

A) We see the target three hexes away in F and 1 hexes away in A; the distance away in F is three times the distance away in A, which makes the target visible through direction F.

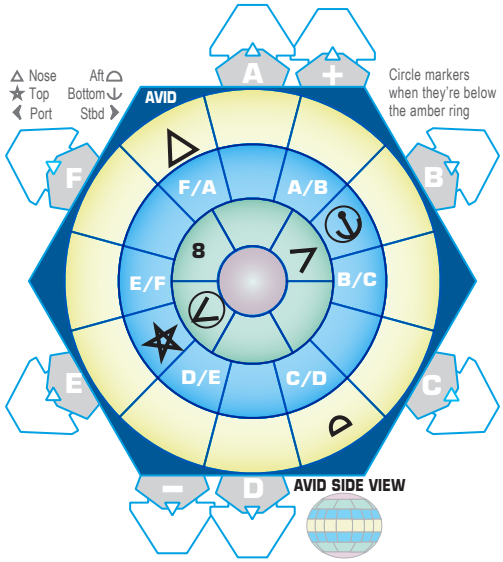
Q) What's the difference in altitude? What's the horizontal distance?

A) Difference in altitude is 7, horizontal distance is 4.

Q) Using the RALT, which AVID ring contains the target marker?

A) Looking out 7 hexes up and 4 hexes out, it's in the green ring at a range of 8. Mark it—put a target marker (shown by the number 8) in the green window facing direction F.

(D3.73) MAPPING IT TO A FIRING ARC DIAGRAM:



Q) How many windows is the target's bearing from the Top of our ship?

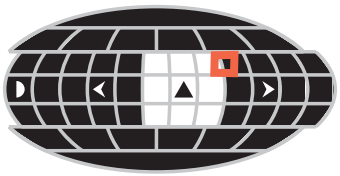
A) Counting from the Top of our ship, we go from the blue ring to the green ring (one window), then from one green window to the next green window (two windows, for two total).

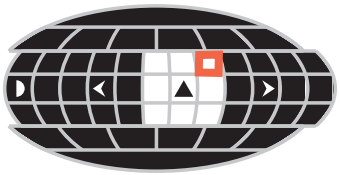
Q) Which orientation marker is closest to the target marker? How many windows separate the orientation and target markers, and in which direction is the offset?

A) This is another ambiguous case; the target marker is two windows away from our Nose marker, and two windows away from the right side marker. (This is a confluence of rounding errors in the AVID). In all ambiguous cases, it resolves to attacker's choice, and in this particular instance, we choose the closest marker as being the Right marker. See the answer to the next question for why.

Q) What window on the Firing Arc Diagram is the target marker in?

A) Counting two windows away from the Top of the Firing Arc Diagram puts us one row above the middle. Two windows away from the Nose marker towards the Right marker puts it out of the firing arc. Two windows away from the Right marker, going towards the Nose marker, puts it in the firing arc.





(D3.74) NOTES:

The top fishbowl diagram shows the 'actual' position of the target marker; because of the rule of "In ambiguous cases, the attacker chooses", the bottom firing arc diagram is used.

This example highlights one of the embedded rounding errors in the AVID, and is an explicit answer to one of the most common "What the heck is the AVID doing?" questions we see on the Ad Astra forum.