

Algebra II – Score Articulations for Anchor Responses E-H

Score Explanation for Anchor Response E

Score: 4

This response demonstrates thorough knowledge and understanding of the subject matter. The student addresses all parts of the task correctly by having a correct graph drawn in part A and by showing the exact points of intersection in part B. The student demonstrates efficient and accurate use of appropriate procedures by showing work for points of intersection in part B:

$$\begin{aligned}x &= -2 \\y &= -3x + 12 \\y &= -3(-2) + 12 \\y &= 18 \\#2 \text{ Intersection} \\(-2, 18)\end{aligned}$$

The explanation of strategies used in the response shows evidence of a good understanding of mathematical concepts and principles (“I graphed each linear equation and tested a point not on the line to determine on which side I would shade. Where all the shaded regions overlapped was the solution region.”). The response is clear and coherent.

Score Explanation for Anchor Response F

Score: 3

This response demonstrates competent knowledge and understanding of the subject matter. The student addresses most parts of the task correctly, although there is a minor computational error in part A when the student is finding the slope-intercept form of the line and writes -4 instead of 4 in the equation, but correctly graphs the incorrect y -intercept. One of the coordinates of a point of intersection is an approximation $\left(\frac{40}{17} \approx 2.4\right)$, as opposed to exact, as well. The examinee demonstrates efficient and accurate use of appropriate procedures:

$$\begin{aligned}x &> -2 \\2x + -5y &\leq -20 \\2(-2) + -5y &\leq -20 \\-4 + -5y &= -20 \\+4 &\quad +4 \\-5y &= -16 \\-5 &\quad -5 \\y &= 3.2\end{aligned}$$

The explanation of strategies used in part A shows some evidence of a good understanding of mathematical concepts and principles (“Put all Formulas in slope-intercept form. graph points use $\frac{\text{rise}}{\text{run}}$ to plot points. if \geq Line is solid if line $>$ line is dotted, Plug 0 in for $x + y$ If true shade accordingly, find feasible region then Find points of intersection.”). The response is mostly clear and coherent.

Score Explanation for Anchor Response G

Score: 2

This response demonstrates basic knowledge and understanding of the subject matter. The student addresses part A of the task correctly with a correct graph, but does not have correct points of intersection for part B. The examinee demonstrates some use of appropriate procedures by showing how to write a line in slope-intercept form:

$$\begin{aligned}\frac{-5y}{-5} &\leq \frac{-2x}{5} - \frac{20}{-5} \\ \frac{-y}{-y} &\leq \frac{-2}{5}x + 4 \\ y &\geq \frac{2}{5}x + 4\end{aligned}$$

The student makes the following mistakes in the second line of the work show: not dividing by -5 properly for each term, not reversing the inequality sign, not ending up with a positive y , and writing $\frac{-y}{-y}$.

However, the student ends up with the correct inequality to graph. The limited explanation of strategies used in part A (“Graph each line then divide each with shading.”), and the lack of explanation in part B shows little evidence of understanding of mathematical concepts and principles. The response is partially clear, but some parts are difficult to understand.

Score Explanation for Anchor Response H

Score: 1

This response demonstrates minimal knowledge and understanding of the subject matter. The student addresses no full parts of the task correctly by graphing only two of the three inequalities correctly as well as by not shading anything. The points of intersection listed are also incorrect. The student shows the procedure for how to put $2x - 5y \leq -20$ into slope intercept form, although a minor computational error is made at the end when dividing $-2x$ by -5 and getting $-2/5$. No procedure is shown for how to find the exact points of intersection, which shows little or no understanding of correct procedures. The minimal explanation of strategies used in the response shows little evidence of understanding of mathematical concepts and principles (“With the inequalities I was given only one was in slope intercept for so I put the others into that form as well. Afterward I graphed accordingly to the equations. The points were $(-2,16)$ $(-2,4.5)$ $(3,3)$ which I got by looking at the intersecting points in the shaded area.”). The response is partially clear, but some parts are difficult to understand.