**2.6 - Solving Systems of Inequalities ⸱ Form A**

**Example 1**

**Solve each system of inequalities. Use the attached graph paper.**

**1.** 3*x* – 2*y* ≤ –1 **2.** *y* < + 2 **3.** *x* + 3*y* < 3

*x* + 4*y* ≥ –12 *y* < –2*x* + 1  *x* – 2*y* ≥ 4

**Example 2**

**Solve each system of inequalities. Use the attached graph paper.**

**4.** *x* > ‒3  **5.** *y* ≤ 0 **6.** *x* ≥ ‒2

*y* < – *x* + 3 *x* ≤ 0 *y* ≥ *x* ‒ 2  *y* > *x* – 1 *y* ≥ ‒*x* ‒ 1 *x* + *y* ≤ 2

**Example 3**

**7. CONSTRUCT ARGUMENTS** Anthony charges $15 an hour for tutoring and $10 an hour for babysitting. He can work no more than 14 hours a week. How many hours should Anthony spend on each job if he wants to earn at least $125 each week?

**a.** Write a system of inequalities to represent this situation.

**b.** Graph the system of inequalities and highlight the solution.

**c.** Determine whether (4, 5), (7, 6), and (5, 10) are viable solutions given the constraints of the situation. Explain.

**Mixed Exercises**

**Solve each system of inequalities. Use the attached graph paper.**

**~~8.~~** *~~y~~* ~~≥ |2~~*~~x~~* ~~+ 4| ‒ 2~~ **~~9.~~** *~~y~~* ~~≥ |6 ‒~~ *~~x~~*~~|~~

~~3~~*~~y~~* ~~+~~ *~~x~~* ~~≤ 15 |~~*~~y~~*~~| ≤ 4~~

**10.** *y* > ‒3*x* + 1 **11.** *x* > *y*

4*y* ≤ *x* ‒ 8 *y* ≤ 6

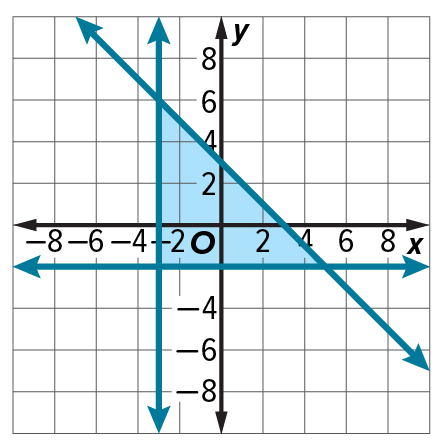
3*x* ‒ 5*y* < 20 *y* ≥ ‒2

**12. FINANCE** Sheila plans to invest $2000 or less in two different accounts. The low risk account pays 3% annual simple interest, and the high risk account pays 12% annual simple interest. Sheila wants to make at least $150 in interest this year.

**a.** Define the variables, then write and graph a system of inequalities to show how Shiela can split her investment between the accounts.

**b.** Explain why your graph for this situation is restricted to Quadrant I.

**c.** Give three viable solutions to meet the constraints of Sheila’s investments.

** 13. STRUCTURE** Write a system of inequalities for the graph shown.

**14. PERSEVERE Find the area of the region defined by the following inequalities.** **Use the attached graph paper.**

*y* ≥‒4*x* ‒ 16

4*y* ≤ 26 ‒ *x*

3*y* + 6*x* ≤ 30

4*y* ‒ 2*x* ≥ ‒10

**15. ANALYZE** Determine whether the statement is *true* or *false*. Justify your argument. A system of two linear

inequalities has either no points or infinitely many points in its solution.