Systems of inequalities and linear programming worksheet – Grade 11

Grade 11 · Mixed level · 20 questions · **Version X4464**

Name: _____ Date: _____ Score: ___ / 20

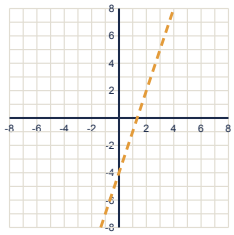
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1. Should the boundary of $y \geq x + 1$ be solid or dashed?

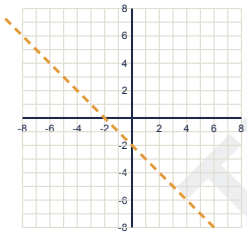
   A. Solid **B.** Dashed

2. Is (-3, -12) in the region $y > 3x - 4$?



   A. Yes **B.** No

3. Is (5, -9) in the region $y > -x - 2$?



   A. Yes **B.** No

4. Should the boundary of $y \geq -2x + 1$ be solid or dashed?

   A. Solid **B.** Dashed

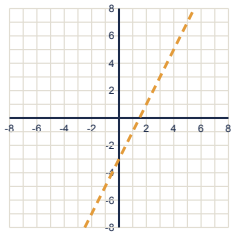
5. Should the boundary of $y < 3x + 1$ be solid or dashed?

   A. Dashed **B.** Solid

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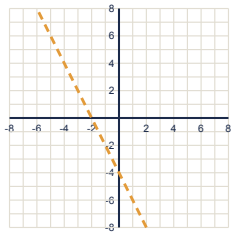
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6. Is (-5, -15) in the region $y > 2x - 3$?



A. Yes **B.** No

7. Is (3, -9) in the region $y > -2x - 4$?



A. Yes **B.** No

8. A corner is where $x = 4$ meets $x + y = 6$. What is the y-coordinate?

   Answer: _____

9. A region has corners (0, 0), (6, 0), (0, 7), (3, 4). What is the maximum of $P = 4x + 7y$?

   Answer: _____

10. What is the value of $C = 7x + 3y$ at the corner (5, 11)?

    Answer: _____

11. Work out the value of $C = 3x + 8y$ at the corner (4, 9).

    Answer: _____

12. Find the value of $C = 7x + 7y$ at the corner (5, 4).

    Answer: _____

13. Which point satisfies both $x + y \leq 9$ and $x \geq 4$?

    A. (3, 5) **B.** (4, 5) **C.** (4, 10) **D.** (10, 5)

14. What is the value of $C = 5x + 2y$ at the corner (6, 4)?

    Answer: _____

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15. A bakery has 24 hours. Cakes take 2 h and earn 24 dollars, and pies take 3 h and earn 19 dollars. If it makes only one product, what is the best profit, in dollars?

    Answer: $_____

16. Why does the best value of a linear profit formula occur at a corner?

    A. Profit changes steadily in one direction across the region

    B. Corners are always the largest numbers **C.** The region is always a square

    D. It only happens by chance

17. A farmer has 24 ha for wheat x and corn y, with $x \geq 2$ and $y \geq 2$. What is the most wheat that can be planted, in ha?

    Answer: _____

18. Tickets are x at 23 dollars and y at 32 dollars, with $x + y \leq 28$ and $y \geq 3$. What is the greatest revenue, in dollars?

    Answer: $_____

19. Tickets are x at 12 dollars and y at 15 dollars, with $x + y \leq 60$ and $y \geq 6$. What is the greatest revenue, in dollars?

    Answer: $_____

20. A bakery has 30 hours. Cakes take 2 h and earn 20 dollars, and pies take 1 h and earn 25 dollars. If it makes only one product, what is the best profit, in dollars?

    Answer: $_____

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Answer key · Version X4464

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1. **A (Solid)**
2. **A (Yes)**
3. **B (No)**
4. **A (Solid)**
5. **A (Dashed)**
6. **B (No)**
7. **A (Yes)**
8. **2**
9. **49**
10. **68**
11. **84**
12. **63**
13. **B ((4, 5))**
14. **38**
15. **288**
16. **A (Profit changes steadily in one direction across the region)**
17. **22**
18. **896**
19. **900**
20. **750**

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