Area from coordinates: the shoelace formula worksheet – Grade 10

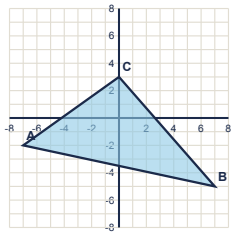
Grade 10 · Mixed level · 20 questions · **Version X4226**

Name: _____ Date: _____ Score: ___ / 20

Scan to check answers + earn stars

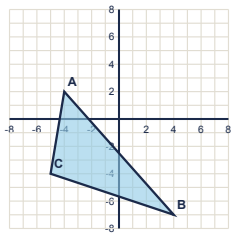
Done the worksheet? Scan the code (or enter version X4226 on this skill's page at themathmeridian.com) to check your answers online and earn stars.

1. A triangular lot has corners at A(-7, -2), B(7, -5), C(0, 3), in metres on a site map. What is its area, in m²?



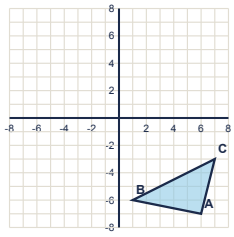
Answer: _____

2. What is the area of the triangle with vertices A(-4, 2), B(4, -7), C(-5, -4)?



Answer: _____

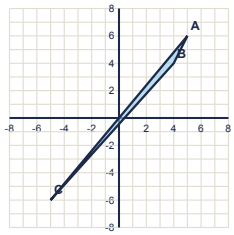
3. Work out the area of the triangle with vertices A(6, -7), B(1, -6), C(7, -3).



Answer: _____

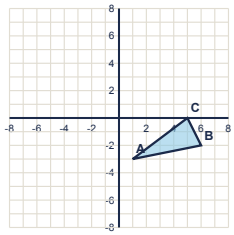
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4. Find the area of the triangle with vertices A(5, 6), B(4, 4), C(-5, -6).



Answer: _____

5. Use the shoelace formula on A(1, -3), B(6, -2), C(5, 0). What is the area?



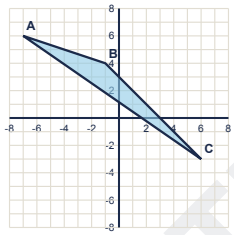
Answer: _____

6. In the shoelace formula, why do you repeat the first vertex at the end?

A. To close the shape **B.** To double the area **C.** To make the sum 0

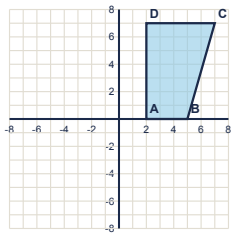
D. It is not needed

7. A triangular lot has corners at A(-7, 6), B(-1, 4), C(6, -3), in metres on a site map. What is its area, in m^2?



Answer: _____

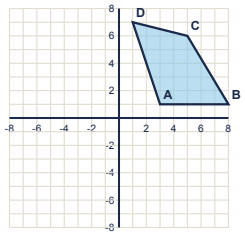
8. What is the area of the quadrilateral with vertices A(2, 0), B(5, 0), C(7, 7), D(2, 7)?



Answer: _____

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9. Find the area of the quadrilateral with vertices A(3, 1), B(8, 1), C(5, 6), D(1, 7).

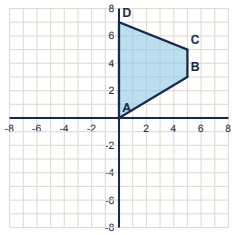


Answer: _____

10. Work out the shoelace area of the three points A(-2, -5), B(-3, -7), C(3, 5).

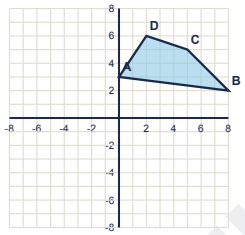
Answer: _____

11. Work out the area of the quadrilateral with vertices A(0, 0), B(5, 3), C(5, 5), D(0, 7).



Answer: _____

12. A surveyor maps a park with corners A(0, 3), B(8, 2), C(5, 5), D(2, 6), in km. Grass seed costs 5 dollars per km². What is the cost, in dollars?



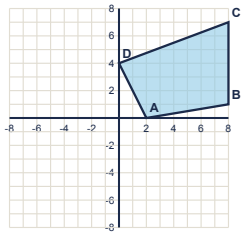
Answer: $_____

13. Do the points A(-4, -9), B(1, 1), C(3, 5) lie on one straight line?

A. Yes **B.** No

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14. A farm field has corners A(2, 0), B(8, 1), C(8, 7), D(0, 4), in units of 10 m. What is its area, in m^2?



Answer: _____ m^2

15. What happens to the shoelace area if you list the vertices in the opposite direction?

A. The sign changes, but the size stays the same **B.** It doubles **C.** It becomes 0

D. It halves

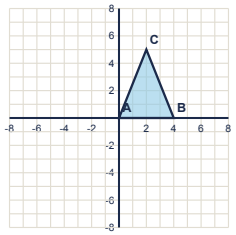
16. A(1, 1), B(7, 1) and C(x, 5) make a triangle. Does its area depend on x? If not, give the area.

Answer: _____

17. The points (0, 0), (4, 4) and (8, t) lie on one line. Find t.

Answer: _____

18. Triangle A(0, 0), B(4, 0), C(2, y) has an area of 10, with y positive. Find y.



Answer: _____

19. A pentagon has vertices (0, 0), (6, 0), (6, 3), (3, 6), (0, 3). What is its area?

Answer: _____

20. A pentagon has vertices (0, 0), (9, 0), (9, 3), (4, 6), (0, 3). What is its area?

Answer: _____

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Answer key · Version X4226

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1. **45.5**
2. **28.5**
3. **10.5**
4. **4**
5. **5.5**
6. **A (To close the shape)**
7. **14**
8. **28**
9. **23.5**
10. **0**
11. **22.5**
12. **80**
13. **A (Yes)**
14. **3700**
15. **A (The sign changes, but the size stays the same)**
16. **12**
17. **8**
18. **5**
19. **27**
20. **40.5**

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