

2. Which conjecture, if any, could you make about the sum of two odd integers and one even integer?
 - a. The sum will be an even integer.
 - b. The sum will be an odd integer.
 - c. The sum will be negative.
 - d. It is not possible to make a conjecture.

5. Athena made the following conjecture.

The sum of a multiple of 4 and a multiple of 8 must be a multiple of 8.

Is the following equation a counterexample to this conjecture? Explain.

$$12 + 24 = 36$$

- a. Yes, it is a counterexample, because 36 is a multiple of 8
- b. No, it is not a counterexample, because 36 is a multiple of 8.
- c. No, it is not a counterexample, because 36 is not a multiple of 8.
- d. Yes, it is a counterexample, because 36 is not a multiple of 8.

7. Which of the following choices, if any, uses deductive reasoning to show that the sum of two odd integers is even?

- a. $3 + 5 = 8$ and $7 + 5 = 12$
- b. $(2x + 1) + (2y + 1) = 2(x + y + 1)$
- c. $2x + 2y + 1 = 2(x + y) + 1$
- d. None of the above choices

10. What type of error, if any, occurs in the following proof?

$$\begin{aligned}2 &= 2 \\4(2) &= 4(1 + 1) \\4(2) + 3 &= 4(1 + 1) + 3 \\8 + 3 &= 6 + 3 \\11 &= 9\end{aligned}$$

- a. a false assumption or generalization
- b. an error in reasoning
- c. an error in calculation
- d. There is no error in the proof.

11. Which type of reasoning does the following statement demonstrate?

Every multiple of 9 has a factor of 3.

27 is a multiple of 9.

Therefore, 27 has a factor of 3.

- a. inductive reasoning
- b. deductive reasoning
- c. neither inductive nor deductive reasoning

13. Determine the unknown term in this pattern.

8, 17, 14, 23, _____, 29, 26, 35

- a. 21
- b. 22
- c. 20
- d. 25

17. What conjecture could you make about the product of two odd integers and one even integer?

28. Alexandra discovered a number trick in a book she was reading:

Choose a number.

Add 2.

Multiply by 4.

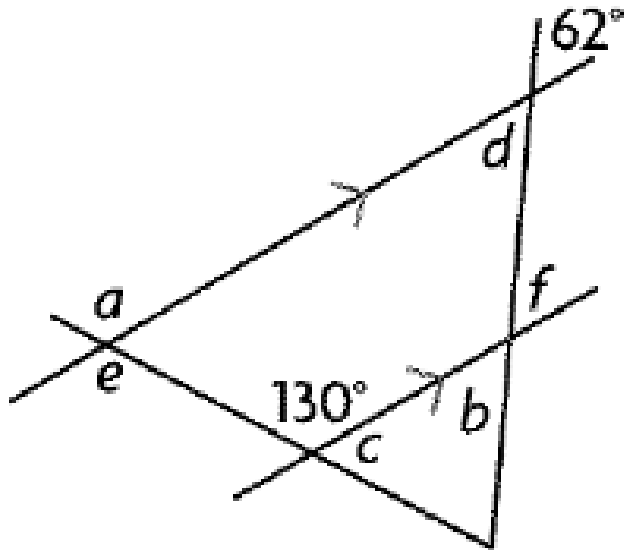
Add 4.

Divide by 4.

Subtract 3.

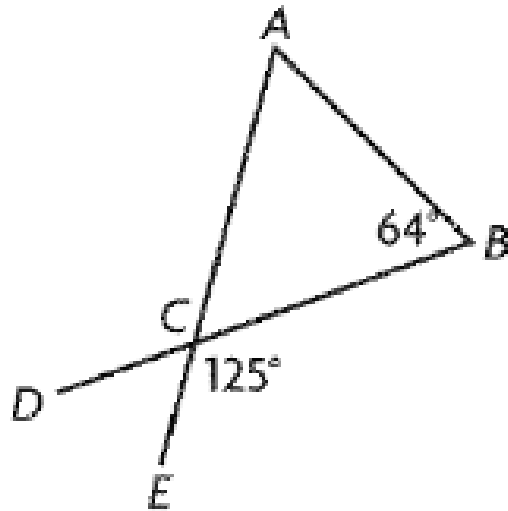
Prove deductively that any number you choose will be the final result.

1. Which statement about the angles in this diagram is false?



- a. $\angle a = \angle e$
- b. $\angle c = \angle e$
- c. $\angle d = \angle b$
- d. $\angle b = \angle f$

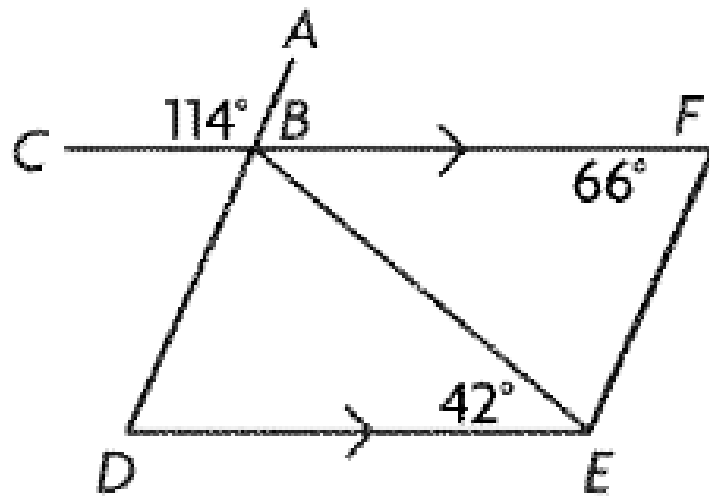
4. Which are the correct measures for $\angle DCE$ and $\angle CAB$?



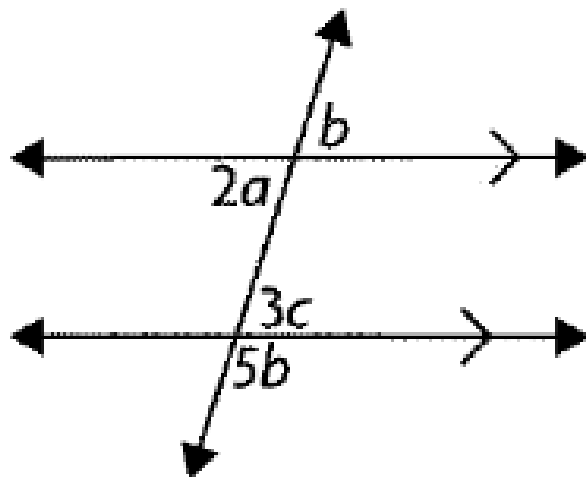
- a. $\angle DCE = 75^\circ$, $\angle CAB = 55^\circ$
- b. $\angle DCE = 65^\circ$, $\angle CAB = 50^\circ$
- c. $\angle DCE = 75^\circ$, $\angle CAB = 66^\circ$
- d. $\angle DCE = 55^\circ$, $\angle CAB = 61^\circ$

8. Each interior angle of a regular convex polygon measures 162° .
How many sides does the polygon have?
- a. 16
 - b. 19
 - c. 18
 - d. 20

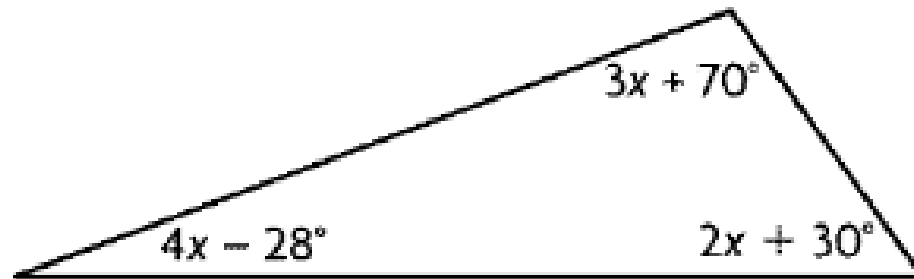
9. Determine the measure of $\angle BDE$.



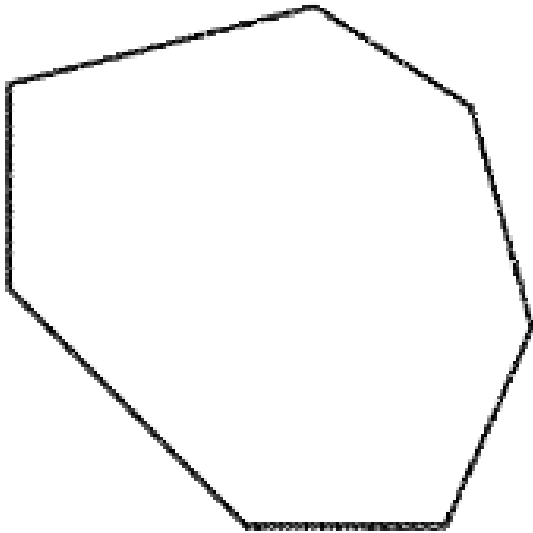
10. Determine the values of a , b , and c .



13. Determine the value of x .



14. Determine the sum of the measures of the interior angles of this seven-sided polygon. Show your calculation.



15. Abbie is measuring the exterior angles of a convex pentagon. So far, she has measured 90° , 90° , 120° , and 40° . What is the measure of the last exterior angle? Show your calculation.