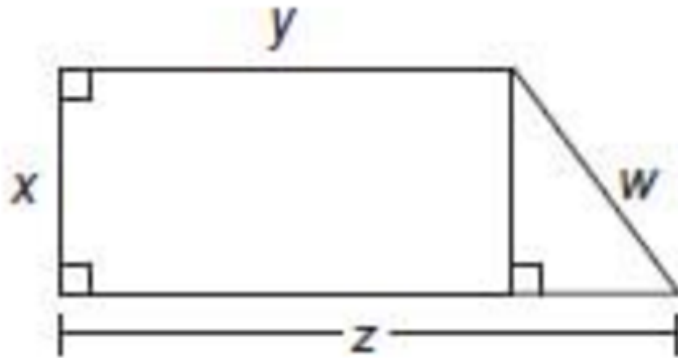# Question 1

In the figure above, what is the value of z?

1. $x=y=1$
2. $w=2$

1. Statement (1) ALONE is sufficient, but statement (2) alone is not sufficient.
2. Statement (2) ALONE is sufficient, but statement (1) alone is not sufficient.
3. BOTH statements TOGETHER are sufficient, but NEITHER statement ALONE is sufficient.
4. EACH statement ALONE is sufficient.
5. Statements (1) and (2) TOGETHER are NOT sufficient.

Question 2

Find the angle made by $f(x)$ and the x-axis.

I) $f(x)$ goes through the origin and the point $(4, 4)$.

II) $f(x)$ makes a 45 degree angle between itself and the y-axis.

Possible Answers:

Statement II is sufficient to answer the question, but statement I is not sufficient to answer the question.
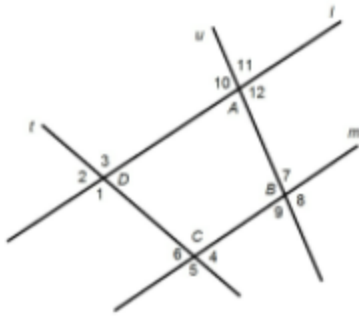
Neither statement is sufficient to answer the question. More information is needed.

Statement I is sufficient to answer the question, but statement II is not sufficient to answer the question.

Either statement is sufficient to answer the question.

Both statements are needed to answer the question.

Question 3

Note: You may assume that t and u are not parallel lines, but you may *not* assume that l and m are parallel lines unless it is specifically stated.

Refer to the above diagram. Is the sum of the measures of $\angle ADC$ and $\angle DCB$ less than, equal to, or greater than 180°?

Statement 1: $m\angle 1 + m\angle 6 = 181^{\circ}$

Statement 2: $m\angle 7 + m\angle 12 = 179^{\circ}$

Possible Answers:

Statement 2 ALONE is sufficient to answer the question, but Statement 1 ALONE is NOT sufficient to answer the question.
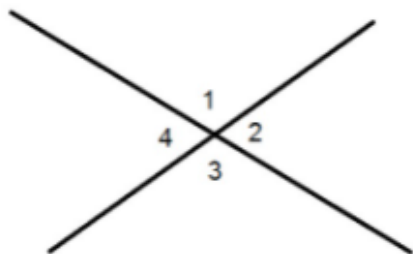
BOTH statements TOGETHER are sufficient to answer the question, but NEITHER statement ALONE is sufficient to answer the question.

Statement 1 ALONE is sufficient to answer the question, but Statement 2 ALONE is NOT sufficient to answer the question.

BOTH statements TOGETHER are insufficient to answer the question.

EITHER statement ALONE is sufficient to answer the question.

Question 4

Note: Figure NOT drawn to scale.

Refer to the above diagram. What is the measure of $\angle 1$?

Statement 1: $m\angle 1 = 30° + 2 \cdot m\angle 2$

Statement 2: $\angle 3$ is a $130°$ angle.

Possible Answers:

BOTH statements TOGETHER are insufficient to answer the question.

Statement 2 ALONE is sufficient to answer the question, but Statement 1 ALONE is NOT sufficient to answer the question.

BOTH statements TOGETHER are sufficient to answer the question, but NEITHER statement ALONE is sufficient to answer the question.

Statement 1 ALONE is sufficient to answer the question, but Statement 2 ALONE is NOT sufficient to answer the question.

EITHER statement ALONE is sufficient to answer the question.

Question 5

$\angle 1$ and $\angle 2$ are supplementary angles. Which one has the greater measure?

Statement 1: $m\angle 1 < 100$

Statement 2: $\angle 2$ is an obtuse angle.

Possible Answers:

Statement 1 ALONE is sufficient to answer the question, but Statement 2 ALONE is NOT sufficient to answer the question.
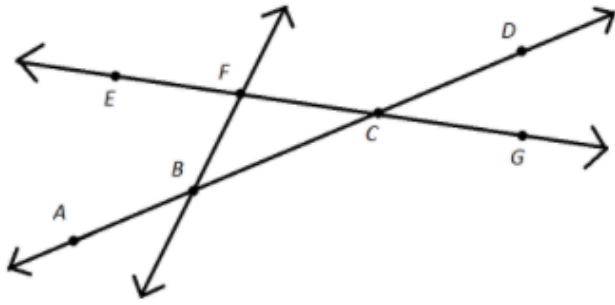
BOTH statements TOGETHER are sufficient to answer the question, but NEITHER statement ALONE is sufficient to answer the question.

EITHER statement ALONE is sufficient to answer the question.

BOTH statements TOGETHER are insufficient to answer the question.

Statement 2 ALONE is sufficient to answer the question, but Statement 1 ALONE is NOT sufficient to answer the question.

Question 6

Note: Figure NOT drawn to scale.

Refer to the above diagram.

What is the measure of $\angle FCB$?

Statement 1: $m\angle FBC = 43°$

Statement 2: $m\angle DCG = 43°$

Possible Answers:

BOTH statements TOGETHER are sufficient to answer the question, but NEITHER statement ALONE is sufficient to answer the question.

EITHER statement ALONE is sufficient to answer the question.

Statement 2 ALONE is sufficient to answer the question, but Statement 1 ALONE is NOT sufficient to answer the question.

Statement 1 ALONE is sufficient to answer the question, but Statement 2 ALONE is NOT sufficient to answer the question.

BOTH statements TOGETHER are insufficient to answer the question.

Question 7

What is the measure of $\angle 1$?

Statement 1: $\angle 1$ is complementary to an angle that measures $48°$.

Statement 2: $\angle 1$ is adjacent to an angle that measures $42°$.

Possible Answers:

BOTH statements TOGETHER are sufficient to answer the question, but NEITHER statement ALONE is sufficient to answer the question.
Statement 1 ALONE is sufficient to answer the question, but Statement 2 ALONE is NOT sufficient to answer the question.
BOTH statements TOGETHER are insufficient to answer the question.
EITHER statement ALONE is sufficient to answer the question.
Statement 2 ALONE is sufficient to answer the question, but Statement 1 ALONE is NOT sufficient to answer the question.

Question 8

A, B, and C are distinct points.

True or false: $\overrightarrow{AB}$ and $\overrightarrow{AC}$ are the same ray.

Statement 1: A, B, and C are collinear.

Statement 2: $AB + BC = AC$.

Possible Answers:

BOTH statements TOGETHER are sufficient to answer the question, but NEITHER statement ALONE is sufficient to answer the question.
Statement 1 ALONE is sufficient to answer the question, but Statement 2 ALONE is NOT sufficient to answer the question.
Statement 2 ALONE is sufficient to answer the question, but Statement 1 ALONE is NOT sufficient to answer the question.
BOTH statements TOGETHER are insufficient to answer the question.
EITHER statement ALONE is sufficient to answer the question.

Question 9

A, B, and C are distinct points.

True or false: $\overrightarrow{AB}$ and $\overrightarrow{AC}$ are the same ray.

Statement 1: $AB + BC > AC$

Statement 2: $AB + AC > BC$.

Possible Answers:

Statement 2 ALONE is sufficient to answer the question, but Statement 1 ALONE is NOT sufficient to answer the question.

BOTH statements TOGETHER are sufficient to answer the question, but NEITHER statement ALONE is sufficient to answer the question.

EITHER statement ALONE is sufficient to answer the question.

BOTH statements TOGETHER are insufficient to answer the question.

Statement 1 ALONE is sufficient to answer the question, but Statement 2 ALONE is NOT sufficient to answer the question.

Question 10

A, B, and C are distinct points.

True or false: $\overrightarrow{AB}$ and $\overrightarrow{AC}$ are the same ray.

Statement 1: $AB = 2 \cdot AC$.

Statement 2: C is the midpoint of $\overline{AB}$.

Possible Answers:

BOTH statements TOGETHER are insufficient to answer the question.

EITHER statement ALONE is sufficient to answer the question.

Statement 2 ALONE is sufficient to answer the question, but Statement 1 ALONE is NOT sufficient to answer the question.

BOTH statements TOGETHER are sufficient to answer the question, but NEITHER statement ALONE is sufficient to answer the question.

Statement 1 ALONE is sufficient to answer the question, but Statement 2 ALONE is NOT sufficient to answer the question.

Question 11

A, B, and C are distinct points.

True or false: $\overrightarrow{AB}$ and $\overrightarrow{AC}$ are opposite rays.

Statement 1: $AB + BC > AC$

Statement 2: $AB + AC > BC$

Possible Answers:

BOTH statements TOGETHER are insufficient to answer the question.

Statement 2 ALONE is sufficient to answer the question, but Statement 1 ALONE is NOT sufficient to answer the question.

BOTH statements TOGETHER are sufficient to answer the question, but NEITHER statement ALONE is sufficient to answer the question.

Statement 1 ALONE is sufficient to answer the question, but Statement 2 ALONE is NOT sufficient to answer the question.

EITHER statement ALONE is sufficient to answer the question.

Question 12

A, B, and C are distinct points.

True or false: $\overrightarrow{AB}$ and $\overrightarrow{AC}$ are opposite rays.

Statement 1: $AC = 2 \cdot AB$.

Statement 2: B is the midpoint of $\overline{AC}$.

Possible Answers:

EITHER statement ALONE is sufficient to answer the question.

BOTH statements TOGETHER are sufficient to answer the question, but NEITHER statement ALONE is sufficient to answer the question.

Statement 1 ALONE is sufficient to answer the question, but Statement 2 ALONE is NOT sufficient to answer the question.

Statement 2 ALONE is sufficient to answer the question, but Statement 1 ALONE is NOT sufficient to answer the question.

BOTH statements TOGETHER are insufficient to answer the question.

Question 13

A, B, and C are distinct points.

True or false: $\overrightarrow{AB}$ and $\overrightarrow{AC}$ are opposite rays.

Statement 1: B is on $\overleftrightarrow{AC}$

Statement 2: C is on $\overleftrightarrow{AB}$

Possible Answers:

Statement 1 ALONE is sufficient to answer the question, but Statement 2 ALONE is NOT sufficient to answer the question.
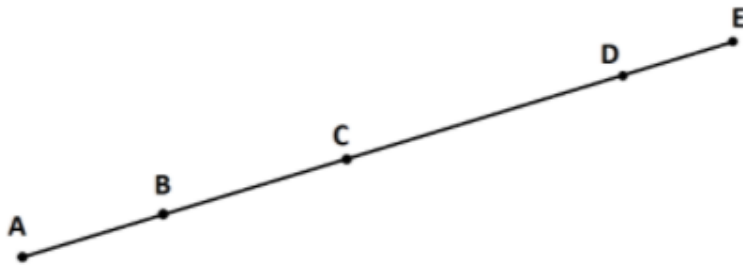
EITHER statement ALONE is sufficient to answer the question.

BOTH statements TOGETHER are insufficient to answer the question.

Statement 2 ALONE is sufficient to answer the question, but Statement 1 ALONE is NOT sufficient to answer the question.

BOTH statements TOGETHER are sufficient to answer the question, but NEITHER statement ALONE is sufficient to answer the question.

Question 14

Note: Figure NOT drawn to scale.

Evaluate AE.

Statement 1: $AD = 24$

Statement 2: $BE = 24$

Possible Answers:

EITHER statement ALONE is sufficient to answer the question.

BOTH statements TOGETHER are insufficient to answer the question.

Statement 2 ALONE is sufficient to answer the question, but Statement 1 ALONE is NOT sufficient to answer the question.

Statement 1 ALONE is sufficient to answer the question, but Statement 2 ALONE is NOT sufficient to answer the question.

BOTH statements TOGETHER are sufficient to answer the question, but NEITHER statement ALONE is sufficient to answer the question.

Question 15

The equations of two lines are:

$4x + 5y = 20$

$Ax + 8y = B$

Are these lines perpendicular?

Statement 1: $A = 4$

Statement 2: $B = -20$

Possible Answers:

BOTH statements TOGETHER are sufficient to answer the question, but NEITHER statement ALONE is sufficient to answer the question.
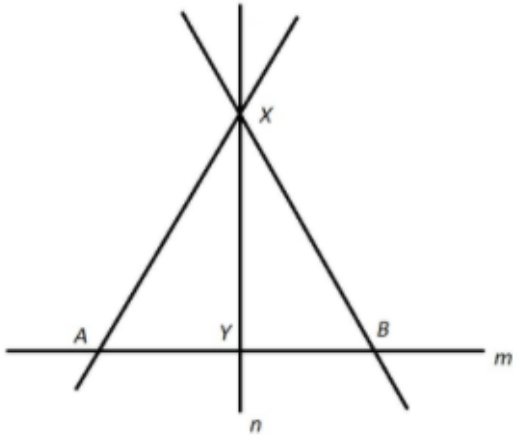
Statement 1 ALONE is sufficient to answer the question, but Statement 2 ALONE is not sufficient to answer the question.

EITHER statement ALONE is sufficient to answer the question.

Statement 2 ALONE is sufficient to answer the question, but Statement 1 ALONE is not sufficient to answer the question.

BOTH statements TOGETHER are insufficient to answer the question.

Question 16

Refer to the above figure. True or false: $m \perp n$

Statement 1: $\triangle XAY \cong \triangle XBY$

Statement 2: Line n bisects $\angle AXB$.

Possible Answers:

BOTH statements TOGETHER are sufficient to answer the question, but NEITHER statement ALONE is sufficient to answer the question.
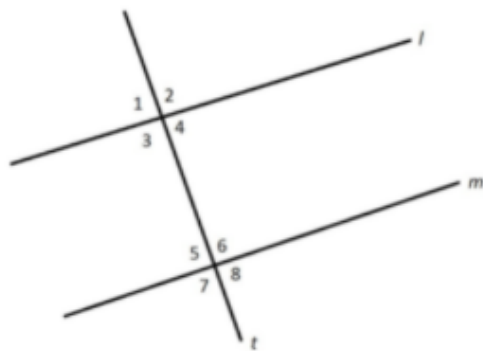
EITHER statement ALONE is sufficient to answer the question.

BOTH statements TOGETHER are insufficient to answer the question.

Statement 2 ALONE is sufficient to answer the question, but Statement 1 ALONE is NOT sufficient to answer the question.

Statement 1 ALONE is sufficient to answer the question, but Statement 2 ALONE is NOT sufficient to answer the question.

Question 17

Refer to the above figure.

True or false: $m \perp t$

Statement 1: $m\angle 2 = 89°$

Statement 2: $\angle 3 \cong \angle 6$

Possible Answers:

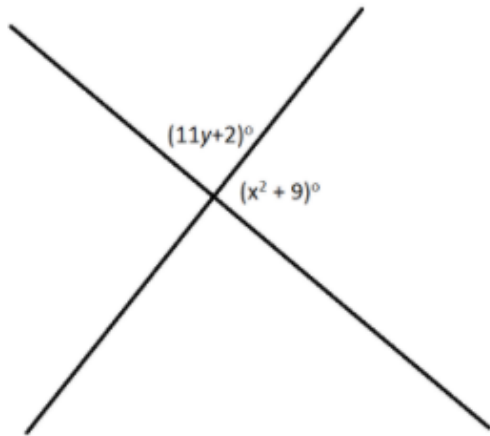BOTH statements TOGETHER are insufficient to answer the question.

Statement 1 ALONE is sufficient to answer the question, but Statement 2 ALONE is NOT sufficient to answer the question.

BOTH statements TOGETHER are sufficient to answer the question, but NEITHER statement ALONE is sufficient to answer the question.

EITHER statement ALONE is sufficient to answer the question.

Statement 2 ALONE is sufficient to answer the question, but Statement 1 ALONE is NOT sufficient to answer the question.

Question 18

$(11y+2)°$

$(x^2 + 9)°$

Statement 1:

Refer to the above figure. Are the lines perpendicular?

Statement 1: $x = 9$

Statement 2: $x = y + 1$

Possible Answers:

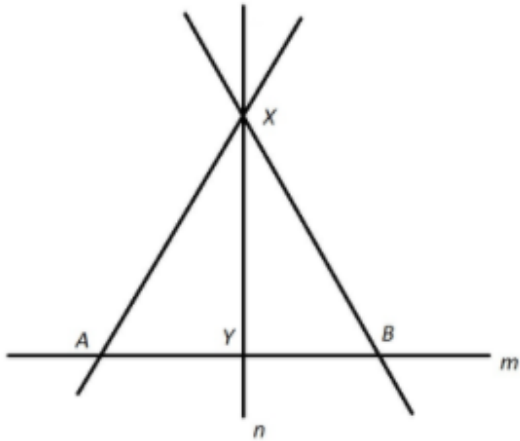| |
| --- |
| EITHER statement ALONE is sufficient to answer the question. |
| BOTH statements TOGETHER are sufficient to answer the question, but NEITHER statement ALONE is sufficient to answer the question. |
| Statement 2 ALONE is sufficient to answer the question, but Statement 1 ALONE is NOT sufficient to answer the question. |
| Statement 1 ALONE is sufficient to answer the question, but Statement 2 ALONE is NOT sufficient to answer the question. |
| BOTH statements TOGETHER are insufficient to answer the question. |

Question 19

Refer to the above figure. True or false: $m \perp n$

Statement 1: $\triangle AXB$ is equilateral.

Statement 2: Line n bisects $\angle AXB$.

Possible Answers:

BOTH statements TOGETHER are insufficient to answer the question.
Statement 1 ALONE is sufficient to answer the question, but Statement 2 ALONE is NOT sufficient to answer the question.
Statement 2 ALONE is sufficient to answer the question, but Statement 1 ALONE is NOT sufficient to answer the question.
BOTH statements TOGETHER are sufficient to answer the question, but NEITHER statement ALONE is sufficient to answer the question.
EITHER statement ALONE is sufficient to answer the question.

Question 20

Is Line A perpendicular to the following line?

$$y = -\frac{1}{2}x + 3$$

Statement 1: The slope of Line A is 3.

Statement 2: Line A passes through the point (2,3).

Possible Answers:

Statement 1 alone is sufficient, but Statement 2 alone is not sufficient to answer the question.

Statement 2 alone is sufficient, but Statement 1 alone is not sufficient to answer the question.

Each statement alone is sufficient.

Both statements taken together are sufficient to answer the question, but neither statement alone is sufficient.

Statements 1 and 2 together are not sufficient, and additional data is needed to answer the question.