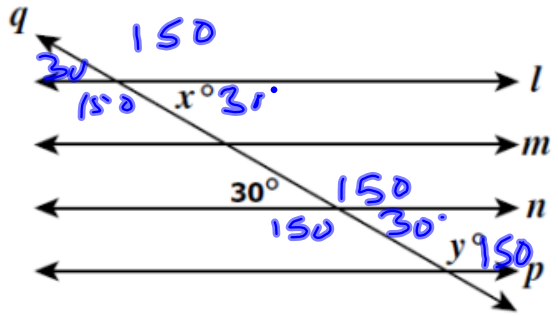
7 In the figure shown, line q is a transversal of parallel lines l, m, n, and p.



What are the values of x and y ?

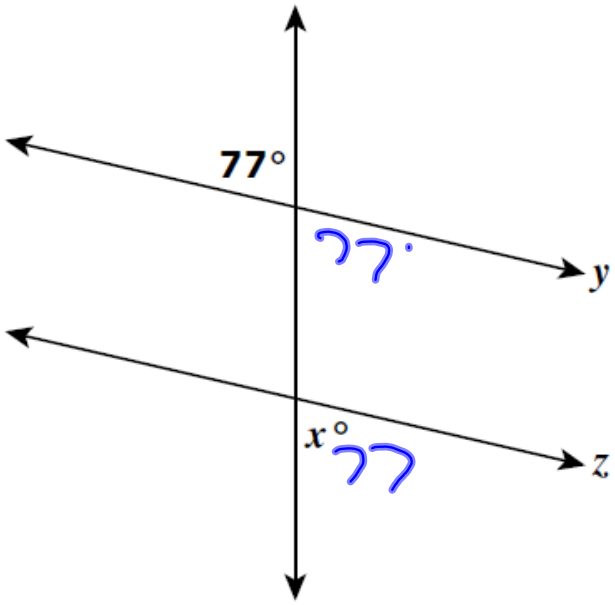
A $x = 30,\ y = 30$

B $x = 30,\ y = 150$

C $x = 150,\ y = 30$

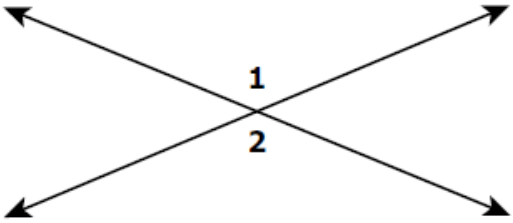
D $x = 150,\ y = 150$

9 Lines y and z are cut by a transversal.



For what value of x is $y \parallel z$? 77

10 In this figure, $m\angle 1 = (15x - 5)°$ and $m\angle 2 = (10x + 35)°$.

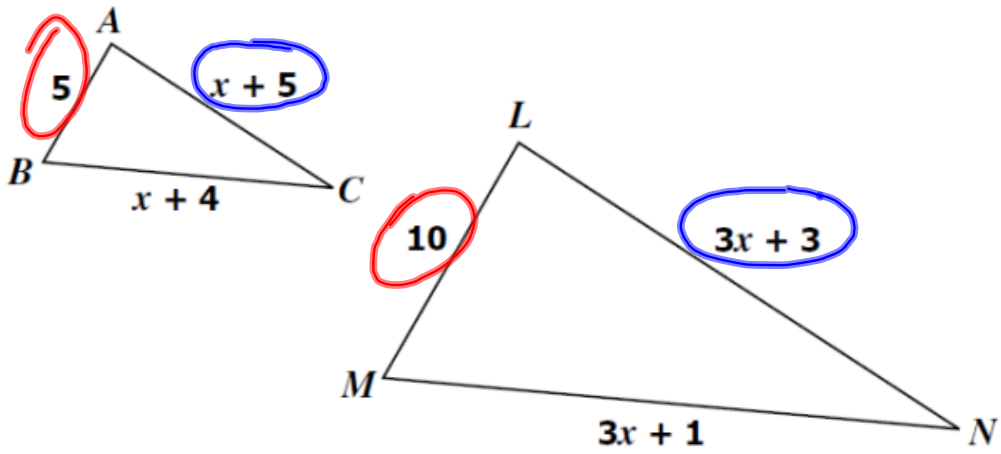


15·8−5
115

What is $m\angle 1$?

$15x - 5 = 10x + 35$
$-10x \quad -10x$
$5x - 5 = 35$
$+5 \quad +5$
$5x = 40$
$x = 8$

12 **Given:** $\triangle ABC \sim \triangle LMN$



What is the length of $\overline{AC}$?

$$\frac{5}{10} = \frac{x+5}{3x+3}$$

$$10(x+5) = 5(3x+3)$$

$$10x + 50 = 15x + 15$$

$-10x \qquad -10x$

$$50 = 5x + 15$$

$-15 \qquad -15$

$$35 = 5x$$

$$x = 7$$

$$AC = 7 + 5 = 12$$

13 **Given the following measures of the sides of triangles, which is a right triangle?**

A 41 cm, 40 cm, 9 cm

B 45 ft, 40 ft, 35 ft

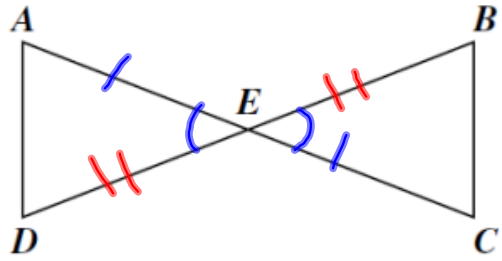
C 52 in., 50 in., 11 in.

D 45 yd, 35 yd, 25 yd

$a^2+b^2=c^2$

$9^2+40^2=41^2$ ✓

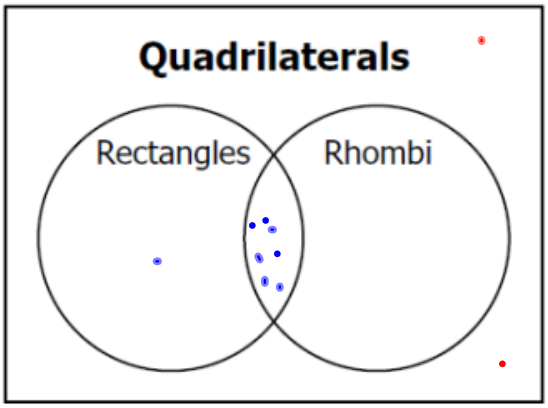
15 **Given: In this figure, $\overline{AC}$ and $\overline{BD}$ bisect each other.**



Based on the information given, which triangle congruence theorem could be used to prove $\triangle AED \cong \triangle CEB$?

SAS

14



Which of the following statements *must* be true about this Venn diagram?

F All rectangles are rhombi.
G Some rhombi are rectangles.
H Quadrilaterals are not rhombi or rectangles.
J All quadrilaterals are rhombi and rectangles.

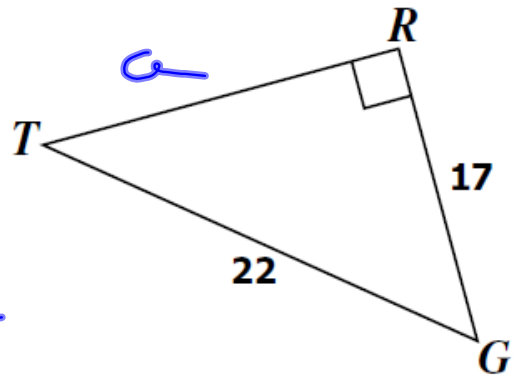
16 **Statement:** ***If lines are skew, then they are not coplanar.***

What is the contrapositive of the statement?

F If lines are not coplanar, then they are skew.
G If lines are not skew, then they are coplanar.
H If lines are coplanar, then they are not skew.
J If lines are skew, then they are coplanar.

19 $\triangle TRG$ **is a right triangle.**

$a^2 + 17^2 = 22^2$
$a^2 + 289 = 484$
$-289 \quad -289$
$a^2 = 195$



Which is closest to the length of $\overline{RT}$ **?**

18 Let $p =$ ***An equation is of the form*** $y = mx + b$.
Let $q =$ ***Its graph is a line.***

Argument: ***If an equation is of the form*** $y = mx + b$, ***then its graph is a line.***
The graph is not a line.
Therefore, the equation is not of the form $y = mx + b$.

Which of the following is the symbolic representation of the given argument?

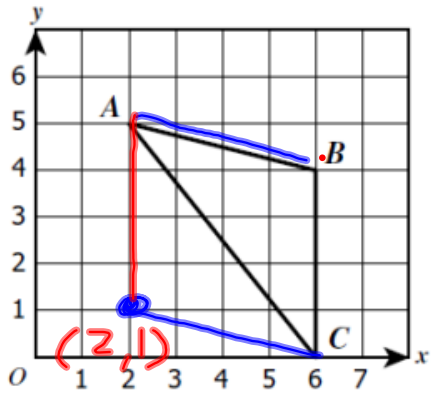
F
$p \to q$
$\sim q$
$\therefore \sim p$

G
$p \to q$
q
$\therefore p$

H
$p \to q$
$\sim p$
$\therefore \sim q$

J
$p \to q$
p
$\therefore q$

17 Coordinates $A(2, 5)$, $B(6, 4)$, and $C(6, 0)$ are connected to form $\triangle ABC$.



If $\triangle CDA$ is congruent to $\triangle ABC$, what are the coordinates of D ?

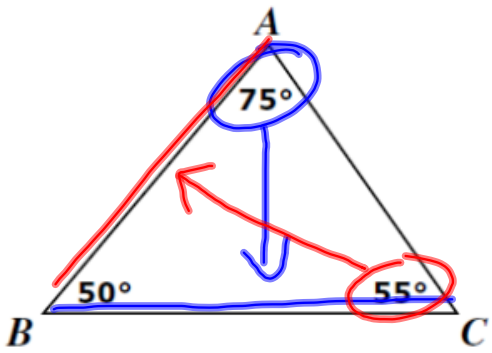
A (1, 1)

B (1, 2)

C (2, 2)

D (2, 1)

20



Which list has the sides of $\triangle ABC$ ordered from longest to shortest?

F $\overline{BC}, \overline{AC}, \overline{AB}$

G ~~$\overline{AB}, \overline{AC}, \overline{BC}$~~

H ~~$\overline{AC}, \overline{AB}, \overline{BC}$~~

J $\overline{BC}, \overline{AB}, \overline{AC}$

BC AB AC

21 **Three survey markers are located on a map at points H, I, and J. A triangle is formed by connecting these markers by string so that $HI = 150$ feet, $HJ = 245$ feet, and $IJ = 365$ feet.**

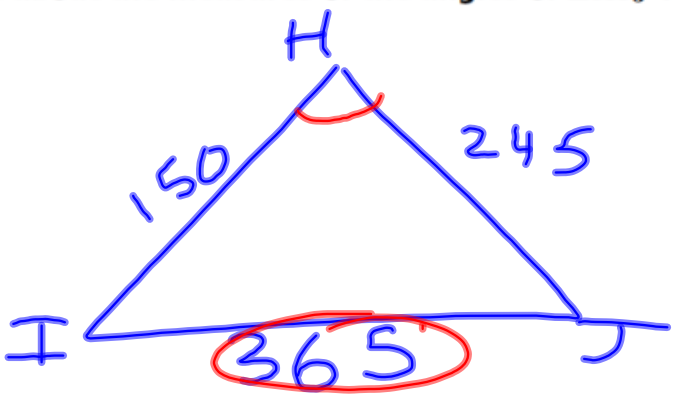
Which statement is true about the measures of the angles of $\triangle HIJ$?

A ~~$m\angle H$ is the smallest~~

B $m\angle H$ is the largest

C $m\angle I$ is the smallest

D $m\angle I$ is the largest



23 **Two sides of a triangle measure 14 inches and 8 inches. Which *cannot* be the length of the remaining side?**

A 6 in.

B 8 in.

C 14 in.

D 21 in.

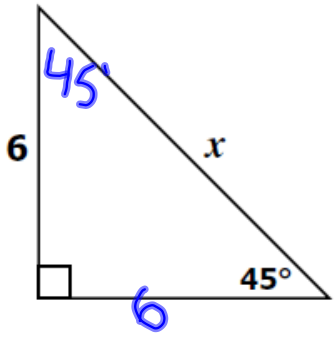
$14 - 8 = 6$

$14 + 8 = 22$

6

22

22



In the figure, what is the value of x?

F ~~6~~

G $6\sqrt{2}$ → 8.48

H ~~$6\sqrt{3}$~~ → 10.3

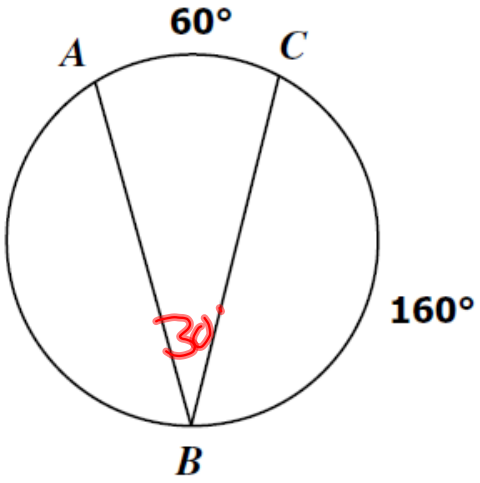
J ~~12~~

could say $6^2+6^2=x^2$

$\sqrt{72}=\sqrt{x^2}$

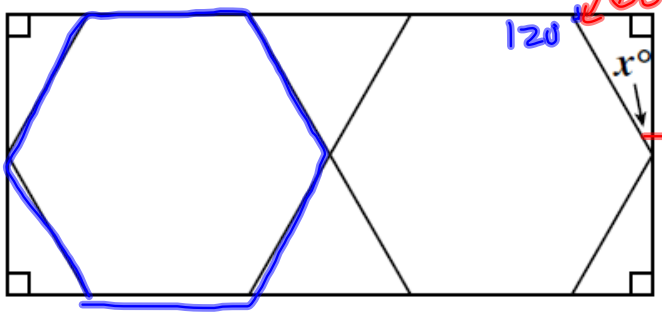
$x \approx 8.48$

24



In the circle, what is the measure of $\angle ABC$?

25 This figure shows a pattern of triangles and regular hexagons.



60°

30°

What is the value of x ?

A 30

B 60

C ~~90~~

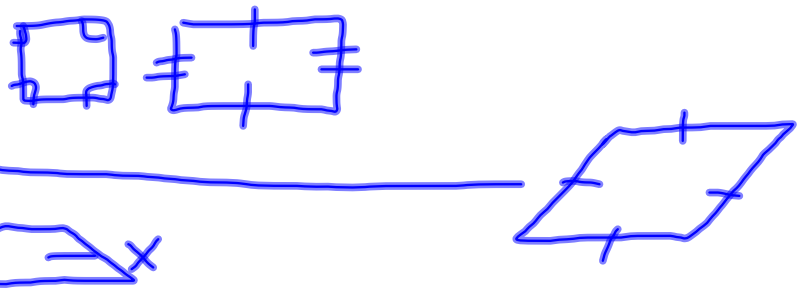
D ~~120~~

$(n-2)\cdot 180 =$

$(6-2)\cdot 180 = 720^\circ$

$\frac{720^\circ}{6} = 120^\circ$

26 **Which figure has all sides of equal measure but not necessarily all angles of equal measure?**



F Square

G Rectangle

H Rhombus

J Trapezoid

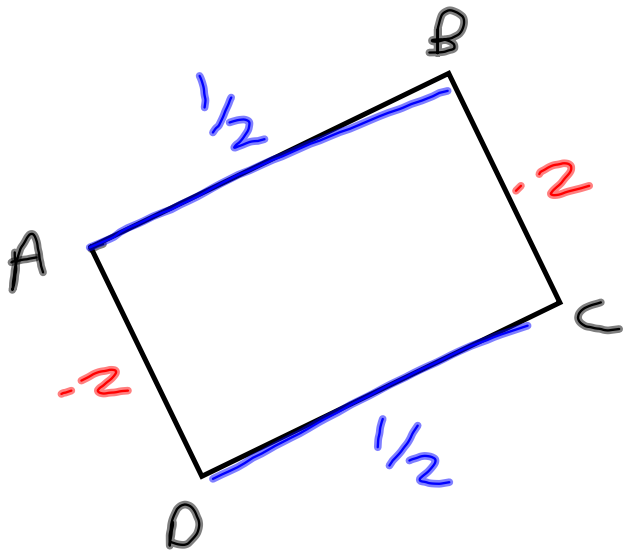
29 **In rectangle $ABCD$, the slope of $\overline{AB}$ is $\frac{1}{2}$. What is the slope of $\overline{CD}$?**

A -2

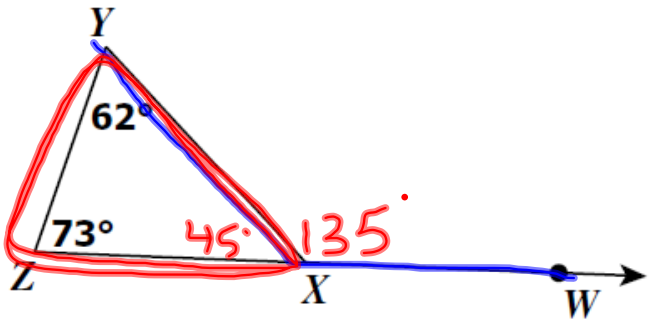
B $-\frac{1}{2}$

C $\frac{1}{2}$

D 2



30 In the figure shown, what is $m\angle WXY$?



73+62=135°

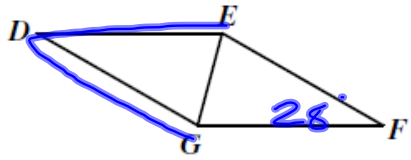
F ~~45°~~

G 107°

H 120°

J 135°

31 $DEFG$ **is a rhombus with** $m\angle EFG = 28°$**.**



What is $m\angle GDE$ **?**

opp. ∠'s are =.

A 14°

B 28°

C 30°

D 56°

32 **This figure is a traffic sign in the shape of a regular octagon.**

$\text{ext.}\angle = \frac{360}{n}$

$= \frac{360}{8}$

$= 45^\circ$

What is the value of x ?

F 45
G 60
H 135
J 180

$(n-2)\cdot 180$

$(8-2)\cdot 180^\circ$

$\frac{1080}{8} = 135^\circ$

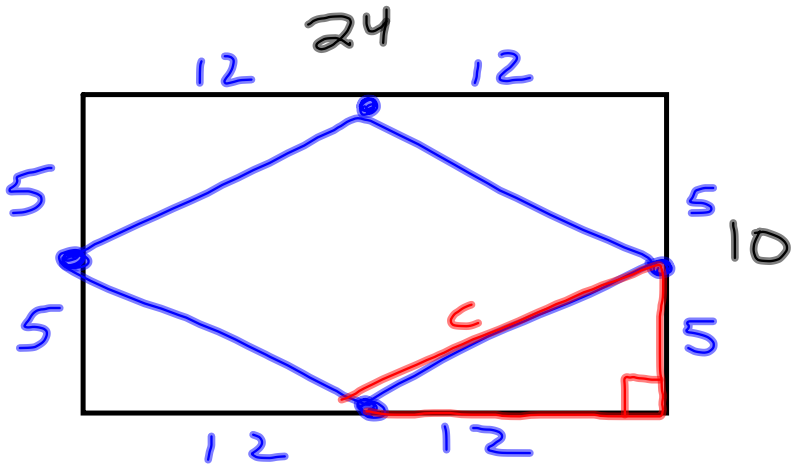
33 A rectangular rug is 24 feet long and 10 feet wide. A rhombus design is formed inside the rug by joining the midpoints of each side of the rectangle. What is the length of each side of the rhombus?

A 13 ft

B 26 ft

C 169 ft

D 240 ft

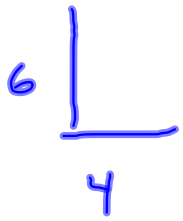


$12^2+5^2=c^2$

$c=13$

34 **A man who is 6 feet tall casts a shadow that is 4 feet long. At the same time, a nearby flagpole casts a shadow that is 18 feet long. How tall is the flagpole?**

F 10 ft
G 12 ft
H 22 ft
J 27 ft



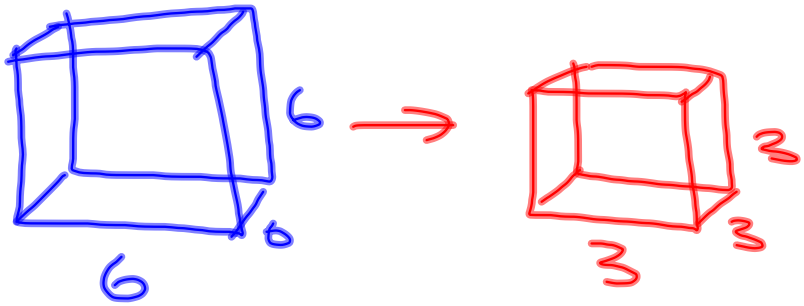
$\frac{6}{x} = \frac{4}{18}$

$4x = 108$

$x = 27$

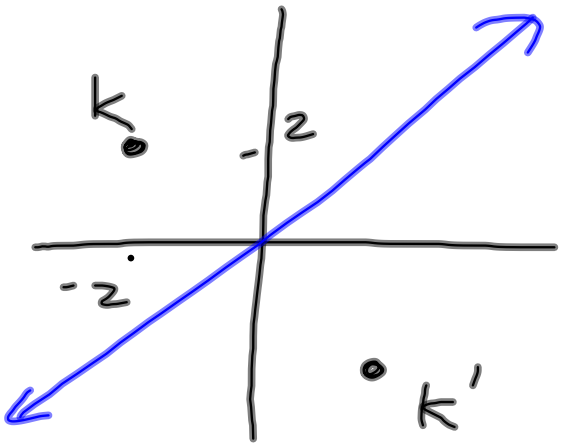
37 **If a cube with side length 6 inches has its dimensions divided in half, what will be the volume of the new cube?**

A 108 cubic inches
B 54 cubic inches
C 27 cubic inches
D 9 cubic inches



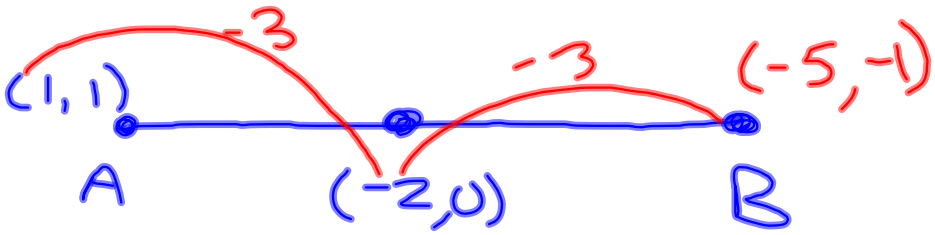
40 Which line of reflection maps point K at $(-2, 2)$ to point K' at $(2, -2)$?

F $y = 2$
G $y = x$
H x-axis
J y-axis

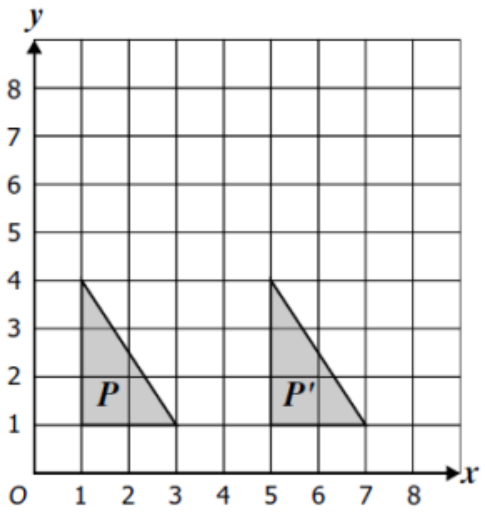


41 If the coordinates of A are $(1, 1)$ and the midpoint of $\overline{AB}$ is $(-2, 0)$, then the coordinates of B are —

A $(-0.5, 0.5)$
B $(0.5, 0.5)$
C $(-1, 0)$
D $(-5, -1)$



42 Which transformation could move the triangle P to triangle P' in a single step?



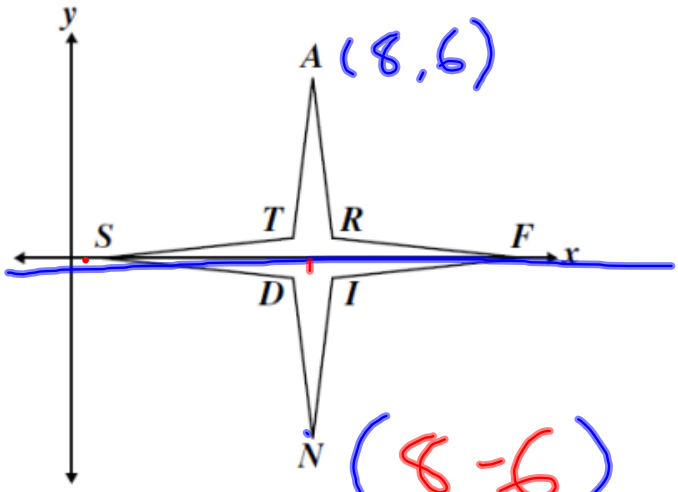
F Reflection over $x = 4$

G Rotation about $(2, 3)$

H Reflection over $y = 4$

J Translation

43 Figure $STARFIND$ is symmetric with respect to the x-axis. The coordinates of point A are (8, 6). What are the coordinates of point N ?



A (8, −6)

~~**B** (6, −8)~~

~~**C** (−6, 8)~~

~~**D** (−8, 6)~~

45 A regular quadrilateral has what type of symmetry?

A Line symmetry only
B Point symmetry only
C Both point and line symmetry
D Neither point nor line symmetry