Triangles

For questions in the Quantitative Comparison format ("Quantity A" and "Quantity B" given), the answer choices are always as follows:

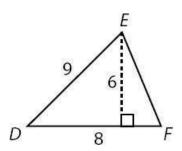
- (A) Quantity A is greater.
- (B) Quantity B is greater.
- (C) The two quantities are equal.
- (D) The relationship cannot be determined from the information given.

For questions followed by a numeric entry box _____, you are to enter your own answer in the

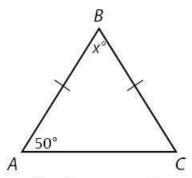
box. For questions followed by fraction-style numeric entry boxes ______, you are to enter your answer in the form of a fraction. You are not required to reduce fractions. For example, if the answer is 1/4, you may enter 25/100 or any equivalent fraction.

All numbers used are real numbers. All figures are assumed to lie in a plane unless otherwise indicated. Geometric figures are not necessarily drawn to scale. You should assume, however, that lines that appear to be straight are actually straight, points on a line are in the order shown, and all geometric objects are in the relative positions shown. Coordinate systems, such as *xy*-planes and number lines, as well as graphical data presentations such as bar charts, circle graphs, and line graphs, *are* drawn to scale. A symbol that appears more than once in a question has the same meaning throughout the question.

1. What is the area of Triangle *DEF*?



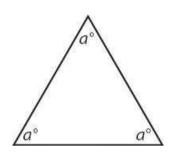
- (A) 23
- (B) 24
- (C) 48
- (D) 56
- (E) 81
- 2. What is the value of x?



Not drawn to scale.



3.



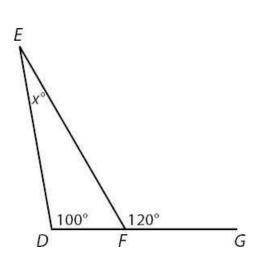
Quantity A

$$2a + b$$

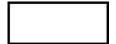


Quantity B

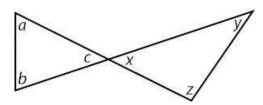
$$3a + \frac{b}{3}$$



DFG is a straight line. What is the value of x?



5



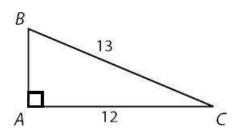
Quantity A

a + b + x

Quantity B

c + y + z

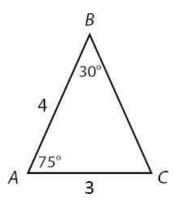
6.



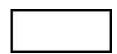
What is the area of right triangle ABC?



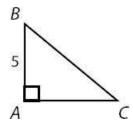
7.



What is the perimeter of triangle *ABC*?



8.

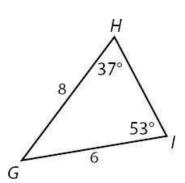


The area of right triangle ABC is 15. What is the length of hypotenuse BC?

(A) $\sqrt{34}$ (B) 6

(C) $\sqrt{51}$

9.



What is the length of side HI?



10. If the hypotenuse of an isosceles right triangle is $7\sqrt{2}$, what is the area of the triangle?

(A) 14

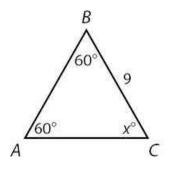
(B) 18

(C) 24.5

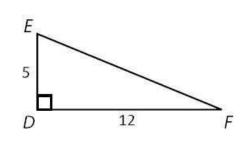
(D) 28

(E) 49

11.



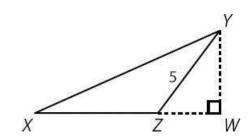
Quantity A Perimeter of triangle ABC



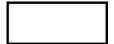
Quantity B

Perimeter of triangle *DEF*

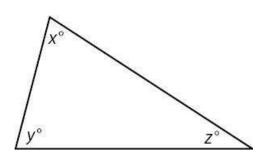
12.



WZ has a length of 3 and ZX has a length of 6. What is the area of Triangle XYZ?



13.



In the figure shown, z + x is 110 degrees.

Quantity A

Quantity B

 \boldsymbol{x}

y

Isosceles triangle ABC has two sides with lengths 8 and 5.

Quantity A

Quantity B

The length of the third side

8

15.

Isosceles triangle ABC has two sides with lengths 2 and 11.

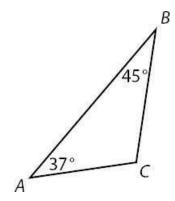
Quantity A

Quantity B

The length of the third side

11

16.



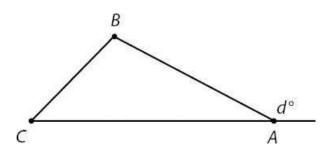
Quantity A

Quantity B

Side length AC

Side length BC

17.



Quantity A

Quantity B

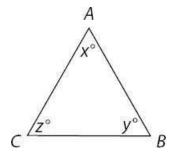
The sum of the measures of angles B and C

d

The sides of a right triangle are 3, 4, and z.

Quantity A Quantity B

19.



Note: Figure NOT drawn to scale

$$x > z$$

$$z > 60$$

Quantity A

Quantity B

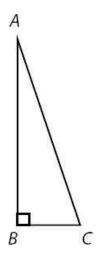
5

The length of side AC

z

The length of side AB

20.



$$AC = 4\sqrt{10}$$

BC is 1/3 the length of AB

Quantity B

The length of AB

10

21.

A triangle has perimeter 24.

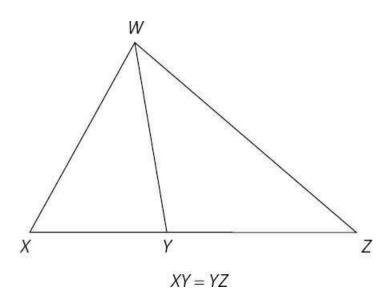
Quantity A

Quantity B

The area of the triangle

20

22.

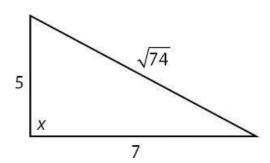


Quantity A

Quantity B

The area of WYX

The area of ZYW

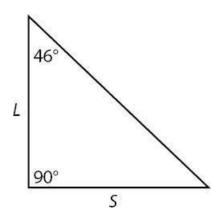


 \boldsymbol{x}

Quantity B

90

24.



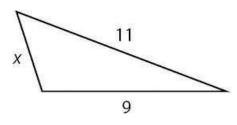
Quantity A

Quantity B

L

1

25.



x is an integer

Quantity A

Quantity B

The number of possible values of x

17

26. If *p* is the perimeter of a triangle with one side of 6 and another side of 9, what is the range of possible values for *p*?

(A)
$$3$$

(B)
$$15$$

(C)
$$18$$

(D)
$$18$$

(E)
$$21$$

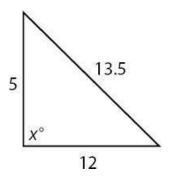
27.

A right triangle has hypotenuse 8 and legs of 6 and x.

Quantity A Quantity B

x 10

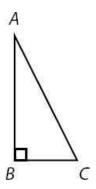
28.



Note: Figure NOT drawn to scale

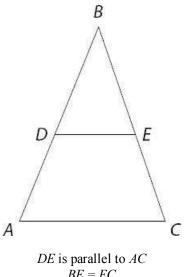
Quantity AQuantity Bx90

29.



The length of BC is equal to x AB is twice as long as BC

Quantity AQuantity BThe length of AC $x\sqrt{3}$



DE is parallel to AC BE = EC AC = 14

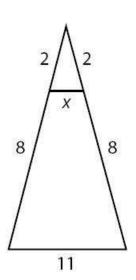
Quantity A Quantity B DE 7

31.

A triangle has sides of 8, m, and n.

Quantity A	Quantity B	
m-n	8	

32.



Note: Figure NOT drawn to scale

If the line segment with length x is parallel to the line segment with length 11, what is the value of x?

- (A) 1
- (B) $\sqrt{2}$
- (C) $\frac{11}{5}$
- (D) $\frac{11}{4}$
- (E) 5.5

33.

Two sides of a triangle have measures 13 and 9.

Quantity A

Quantity B

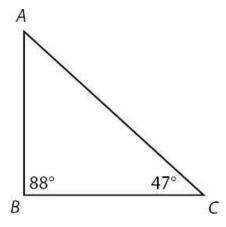
The measure of the third side of the triangle.

√226

34. What is the area of an equilateral triangle with side length 4?

- (A) $2\sqrt{3}$
- (B) 4.5
- (C) $4\sqrt{2}$
- (D) $4\sqrt{3}$
- (E) 8

35. Triangle ABC is given below with angle measures B and C given.

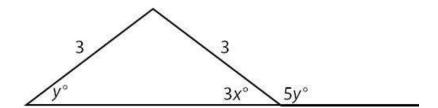


Quantity B

The length of side *AB*

The length of side BC

36.



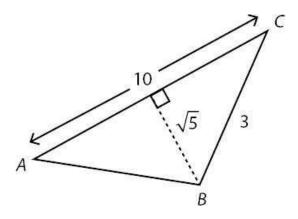
What is the value of x in the figure above?

- (A) 5
- (B) 10
- (C) 18
- (D) 30
- (E) 54

37. An isosceles right triangle has an area of 50. What is the length of the hypotenuse?

- (A) 5
- (B) $5\sqrt{2}$
- (C) $5\sqrt{3}$ (D) 10
- (E) $10\sqrt{2}$

38.



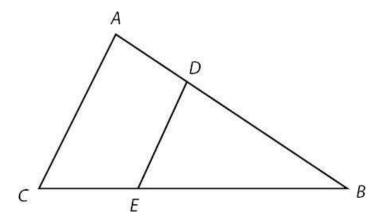
Note: Figure NOT drawn to scale

In the figure above, what is the length of side *AB*?

- (B) $\sqrt{30}$ (C) $5\sqrt{2}$ (D) 8

- $(E) \sqrt{69}$

39. In the figure below, AC is parallel to DE and the length of DE is equal to the length of EB.



Note: Figure NOT drawn to scale

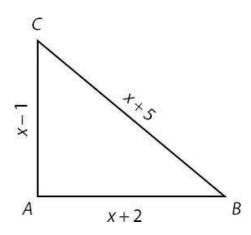
Quantity A

Quantity B

The length of side AC

The length of side *CB*

40.

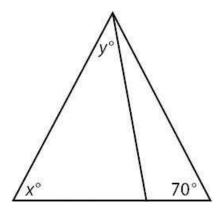


In the right triangle above, what is the length of AB?

- (A) 9
- (B) 10
- (C) 12
- (D) 13

(E) 15

41.



Note: Figure NOT drawn to scale

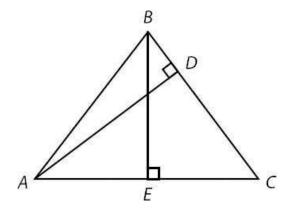
Quantity A

x + y

Quantity B

110

42.

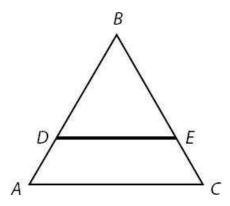


Quantity A

Quantity B

The product of BE and AC

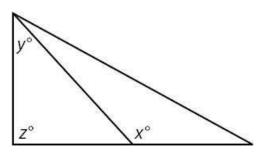
The product of BC and AD



In the figure above, DE and AC are parallel lines. If AC = 10, DE = 6, and CE = 2, what is the length of side BC?

- (A) 2 (B) 3 (C) 5 (D) 6
- (E) 8

44.

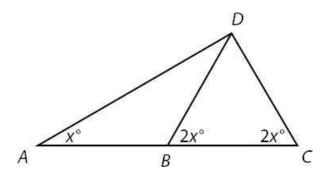


Quantity A

Quantity B

x

y + z

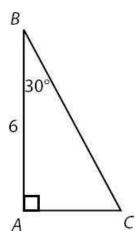


Quantity B

The length of side DC

The length of side AB

46.



What is the perimeter of right triangle ABC above?

(A)
$$6 + 4\sqrt{3}$$

(B) $6 + 6\sqrt{3}$
(C) $6 + 8\sqrt{3}$

(B)
$$6 + 6\sqrt{3}$$

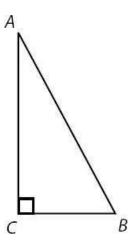
(C)
$$6 + 8\sqrt{3}$$

(D)
$$9 + 6\sqrt{3}$$

(E)
$$18 + 6\sqrt{3}$$

47. A 10 foot ladder leans against a vertical wall and forms a 60 degree angle with the floor. Assuming the ground below the ladder is perfectly horizontal, how far above the ground is the top of the ladder?

- (A) 5 feet
- (B) $5\sqrt{3}$ feet (C) 7.5 feet
- (D) 10 feet
- (E) $10\sqrt{3}$ feet

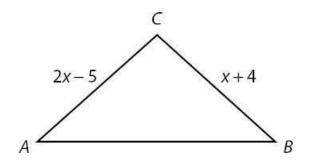


Note: Figure NOT drawn to scale

Triangle ABC has area 36. If side AC is twice as long as side CB, what is the length of side AB?

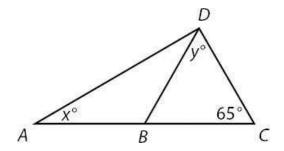
- (A) 6
- (B) 12
- (C) $6\sqrt{5}$ (D) 18
- (E) 12 $\sqrt{5}$

49. In the figure shown, the measure of angle A is equal to the measure of angle B.



Quantity A **Quantity B** 7 Side length CB

50. In the figure shown, side lengths AB, BD, and DC are all equal.

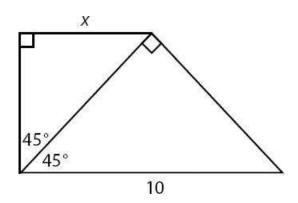


Quantity B

x

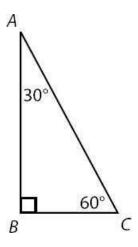
у

51.



In the figure shown, what is the value of x?

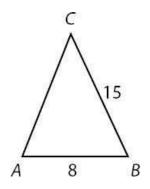
- (A) 2.5
- (B) $\frac{5}{\sqrt{2}}$ (C) 5 (D) $5\sqrt{2}$



Quantity B

The ratio of the length of side BC to the length of side AB

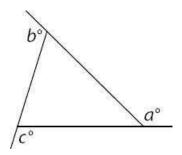
53.



Note: Figure NOT drawn to scale

Which of the following statements individually provide sufficient information to calculate the area of triangle ABC?

Angle *B* equals 90. \square Side *AC* equals 17. \square *ABC* is a right triangle

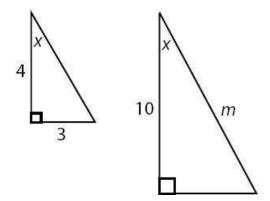


a + b + c

Quantity B

180

55.



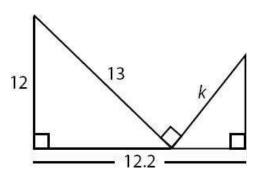
Quantity A

m

Quantity B

15

56.



What is the length of hypotenuse k?



Triar	ngles			
Pregunta	Respuesta	Pregunta	Respuesta	
	В		С	
	80	•	С	
	С		В	
	20	47		
	C		C	
	30		A	
	11	<u>-</u>	В	
	D		C	
	10	-	В	
10			I & II only	
11		54	A	
	12		В	
13			7.8	
14			7.0	
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