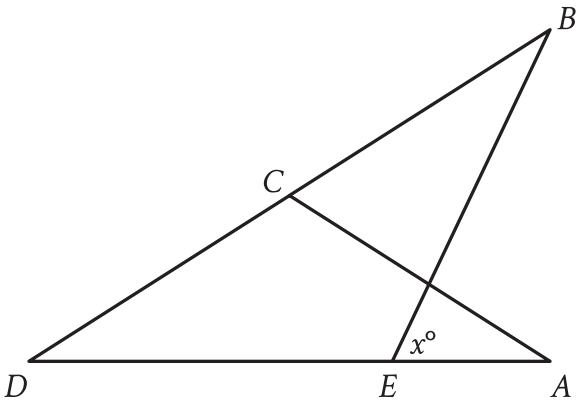
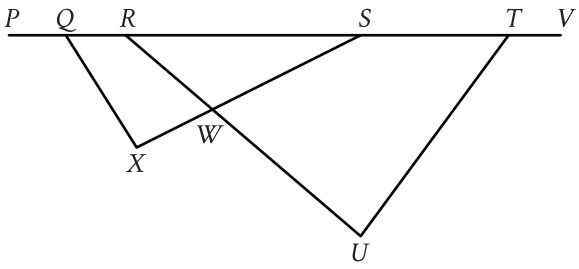
#1 ID: 6d99b141



Note: Figure not drawn to scale.

In the figure, $AC = CD$. The measure of angle EBC is $45°$, and the measure of angle ACD is $104°$. What is the value of x?

#2 ID: e10d8313

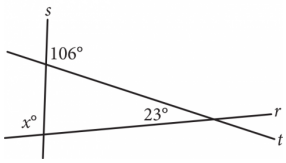


Note: Figure not drawn to scale.

In the figure shown, points Q, R, S, and T lie on line segment PV, and line segment RU intersects line segment SX at point W. The measure of $\angle SQX$ is $48°$, the measure of $\angle SXQ$ is $86°$, the measure of $\angle SWU$ is $85°$, and the measure of $\angle VTU$ is $162°$. What is the measure, in degrees, of $\angle TUR$?

#3 ID: f88f27e5

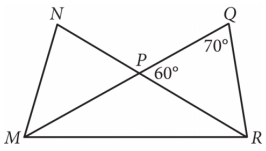
Intersecting lines r, s, and t are shown below.



What is the value of x?

#4

ID: 947a3cde



In the figure above, $\overline{MQ}$ and $\overline{NR}$ intersect at point P, $NP = QP$, and $MP = PR$. What is the measure, in degrees, of $\angle QMR$? (Disregard the degree symbol when gridding your answer.)

#5

ID: a0369739

In triangle ABC, the measure of angle B is $90°$ and BD is an altitude of the triangle. The length of AB is 15 and the length of AC is 23 greater than the length of AB. What is the value of $\frac{BC}{BD}$?

A) $\frac{15}{38}$

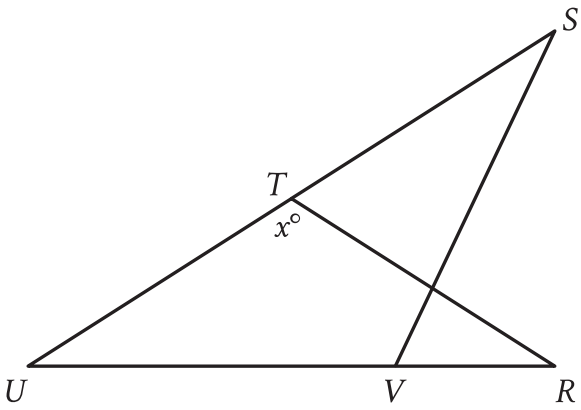
B) $\frac{15}{23}$

C) $\frac{23}{15}$

D) $\frac{38}{15}$

#6

ID: 2d2cb85e

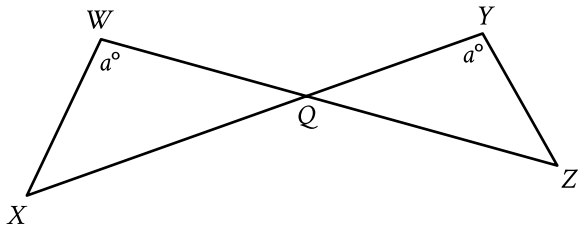


Note: Figure not drawn to scale.

In the figure, $RT = TU$, the measure of angle VST is $29°$, and the measure of angle RVS is $41°$. What is the value of x?

#7

ID: 345cc36a



Note: Figure not drawn to scale.

In the figure shown, $\bar{WZ}$ and $\bar{XY}$ intersect at point Q. $YQ = 63$, $WQ = 70$, $WX = 60$, and $XQ = 120$. What is the length of $\bar{YZ}$?

#8

ID: 901c3215

In triangles ABC and DEF, angles B and E each have measure $27°$ and angles C and F each have measure $41°$. Which additional piece of information is sufficient to determine whether triangle ABC is congruent to triangle DEF?

A) The measure of angle A

B) The length of side AB

C) The lengths of sides BC and EF

D) No additional information is necessary.

#9

ID: f7dbde16

In triangles LMN and RST, angles L and R each have measure $60°$, $LN = 10$, and $RT = 30$. Which additional piece of information is sufficient to prove that triangle LMN is similar to triangle RST?

A) $MN = 7$ and $ST = 7$

B) $MN = 7$ and $ST = 21$

C) The measures of angles M and S are $70°$ and $60°$, respectively.

D) The measures of angles M and T are $70°$ and $50°$, respectively.

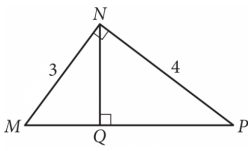
#10

ID: b1e1c2f5

In right triangle ABC, angle C is the right angle and $BC = 162$. Point D on side AB is connected by a line segment with point E on side AC such that line segment DE is parallel to side BC and $CE = 2AE$. What is the length of line segment DE?

#11

ID: 740bf79f



In the figure above, what is the length of $\overline{NQ}$?

A) 2.2

B) 2.3

C) 2.4

D) 2.5

#12

ID: 3b225698

Triangle XYZ is similar to triangle RST such that X, Y, and Z correspond to R, S, and T, respectively. The measure of $\angle Z$ is $20°$ and $2XY = RS$. What is the measure of $\angle T$?

A) $2°$

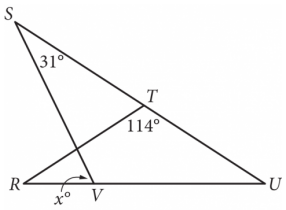
B) $10°$

C) $20°$

D) $40°$

#13

ID: bd7f6e30



In the figure above, $RT = TU$. What is the value of x ?

A) 72

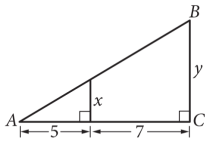
B) 66

C) 64

D) 58

#14

ID: eeb4143c



Note: Figure not drawn to scale.

The area of triangle ABC above is at least 48 but no more than 60. If y is an integer, what is one possible value of x ?

#15

ID: 48fb6483

In triangle XYZ, angle Y is a right angle, point P lies on $\bar{XZ}$, and point Q lies on $\bar{YZ}$ such that $\bar{PQ}$ is parallel to $\bar{XY}$. If the measure of angle XZY is $63°$, what is the measure, in degrees, of angle XPQ ?

#16

ID: 010243e6

Triangles PQR and LMN are graphed in the *xy*-plane. Triangle PQR has vertices P, Q, and R at $(4, 5)$, $(4, 7)$, and $(6, 5)$, respectively. Triangle LMN has vertices L, M, and N at $(4, 5)$, $(4, 7 + k)$, and $(6 + k, 5)$, respectively, where k is a positive constant. If the measure of $\angle Q$ is $t°$, what is the measure of $\angle N$?

A) $(90 - t - k)°$

B) $(90 - t + k)°$

C) $(90 - t)°$

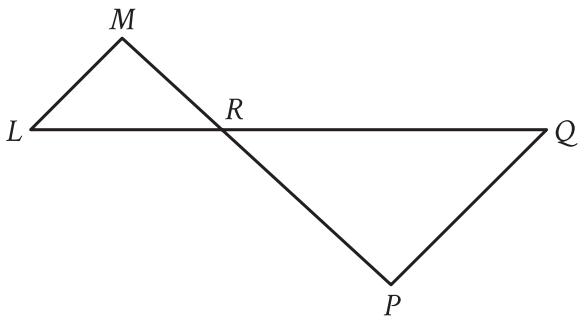
D) $(90 + k)°$

#17

ID: 5b4757df

In triangle RST, angle T is a right angle, point L lies on $\bar{RS}$, point K lies on $\bar{ST}$, and $\bar{LK}$ is parallel to $\bar{RT}$. If the length of $\bar{RT}$ is 72 units, the length of $\bar{LK}$ is 24 units, and the area of triangle RST is 792 square units, what is the length of $\bar{KT}$, in units?

#18 ID: adae6543



Note: Figure not drawn to scale.

In the figure, $\bar{LQ}$ intersects $\bar{MP}$ at point R, and $\bar{LM}$ is parallel to $\bar{PQ}$. The lengths of $\bar{MR}$, $\bar{LR}$, and $\bar{RP}$ are 6, 7, and 11, respectively. What is the length of $\bar{LQ}$?

A) $\frac{119}{11}$

B) $\frac{77}{6}$

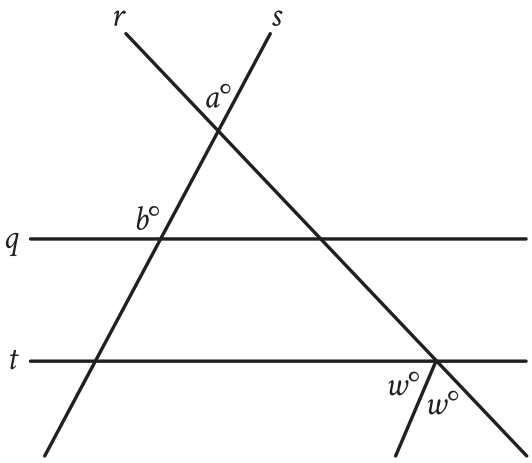
C) $\frac{113}{6}$

D) $\frac{119}{6}$

#19 ID: f731d88b

In convex pentagon $ABCDE$, segment AB is parallel to segment DE. The measure of angle B is 139 degrees, and the measure of angle D is 174 degrees. What is the measure, in degrees, of angle C?

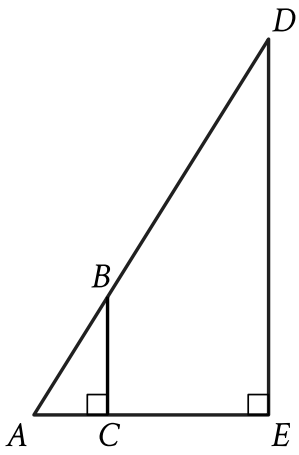
#20 ID: 17912810



Note: Figure not drawn to scale.

In the figure, parallel lines q and t are intersected by lines r and s. If $a = 43$ and $b = 122$, what is the value of w?

#21 ID: 694b7fce

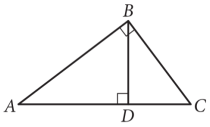


Note: Figure not drawn to scale.

In the figure shown, $AB = \sqrt{34}$ units, $AC = 3$ units, and $CE = 21$ units. What is the area, in square units, of triangle ADE?

#22

ID: 6a3fbec3



Note: Figure not drawn to scale.

In the figure above, $BD = 6$ and $AD = 8$. What is the length of $\overline{DC}$?

#23

ID: f67255ea

A line intersects two parallel lines, forming four acute angles and four obtuse angles. The measure of one of the acute angles is $(9x - 560)°$. The sum of the measures of one of the acute angles and three of the obtuse angles is $(-18x + w)°$. What is the value of w?