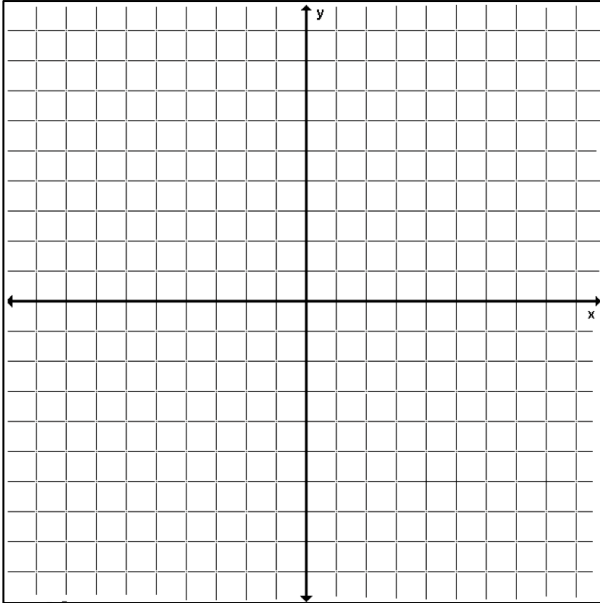
Target 1: Classifying Triangles
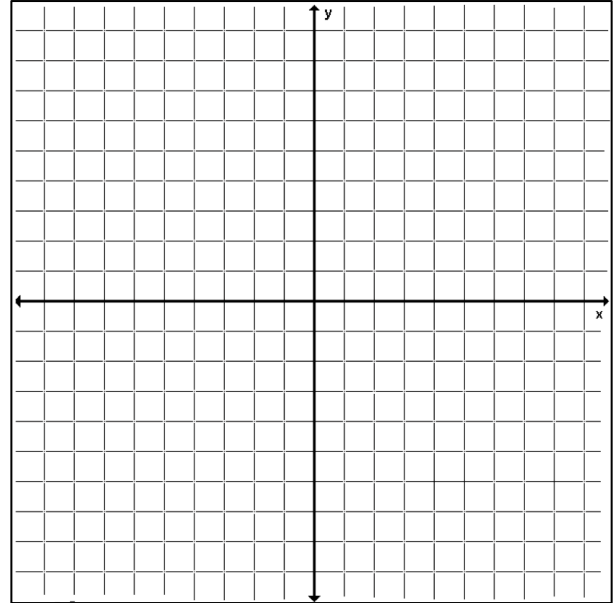
Directions: Determine the type of triangle. Select all that apply.

1) $A(-1,3), B(5,5), C(4,-2)$

(A) Scalene   (B) Equilateral
(C) Isosceles   (D) Acute
(E) Obtuse   (F) Right

2) $A(-1,-1), B(-5,-1), C(-1,-8)$

(A) Scalene   (B) Equilateral
(C) Isosceles   (D) Acute
(E) Obtuse   (F) Right

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3) In $\mathrm{D}ABC$, $\angle A$ and $\angle B$ are complementary and equal. Which type of triangle is $\mathrm{D}ABC$?
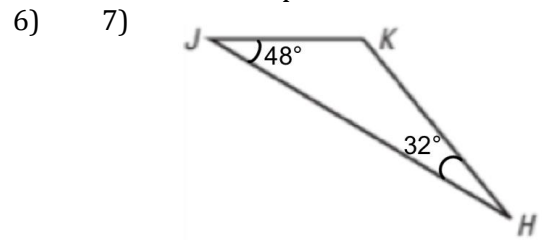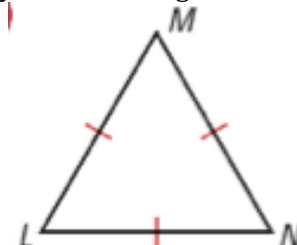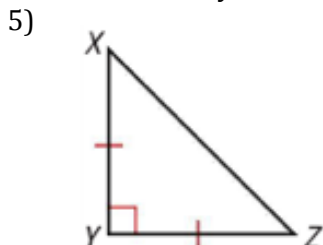
Select all that apply.

(A) Scalene
(B) Isosceles
(C) Acute
(D) Right
(E) Obtuse

4) In $\triangle ABC, \angle A = 32°$ and $\angle B = 24°$. Which type of triangle is $\mathrm{D}ABC$?
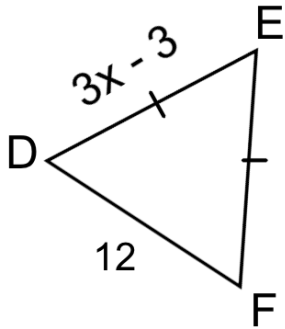
Select all that apply.

(A) Scalene
(B) Isosceles
(C) Acute
(D) Right
(E) Obtuse

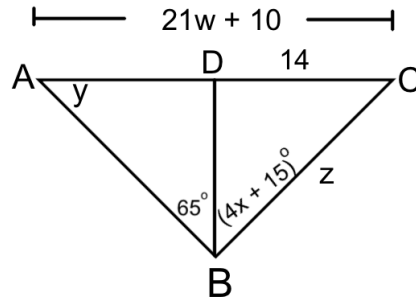Directions: Classify the following triangles by sides and angles with the most accurate descriptions.
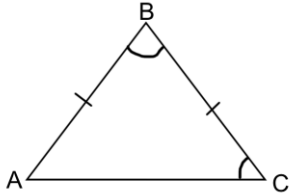
5)

6)   7)

8) The perimeter of the triangle pictured is 32 meters. What is the value of x?

9) ΔABC is isosceles, with vertex angle at B. BD, is an angle bisector of $\angle B$. Find the value of the variables.


10) Trevor says the triangle below is not an equilateral triangle, because neither all the sides nor all the angles are marked as congruent. Do you agree with Trevor? Explain.

11) The height of an equilateral triangle is $6\sqrt{3}$. What is the length of one side of the triangle?

12) Prove that the triangle with the following vertices is an isosceles triangle. Make sure to include the perpendicular bisector and midpoint:
$A(-6,3)$
$B(1,-6)$
$C(-2,5)$
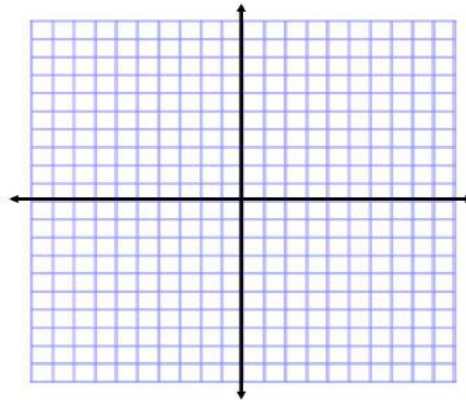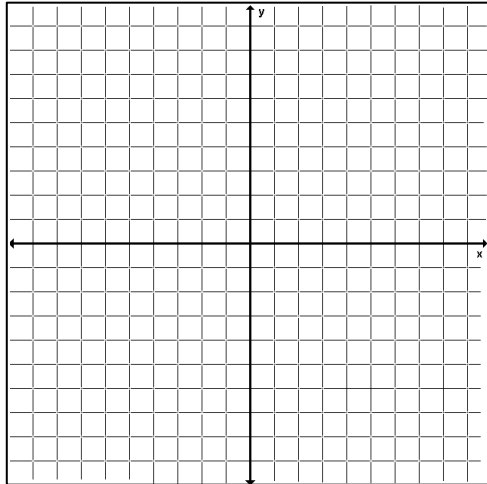
13) $\Delta MNO \cong \Delta PQR$. If $m\angle P = 2x^2 - 22$, $\angle M = 10 - 12x$, and $NO = -2x + 4$. Find x and QR.

14) $\Delta ABC \cong \Delta DEF$. If $AC = x^2 + 93$, $DF = 20x - 7$, and $EF = 5x$. Find x and EF.

$x =$ _____ $QR =$ _____

$x =$ _____ $EF =$ _____

15) $\Delta ABC \cong \Delta XYZ$ ΔABC has coordinates $A(-2,2), B(-10,2), C(-6,8).$ ΔXYZ has coordinates $X(2,-4), Y(2,4), Z(a,b).$ What must the values be for $a, b,$ and their sum?
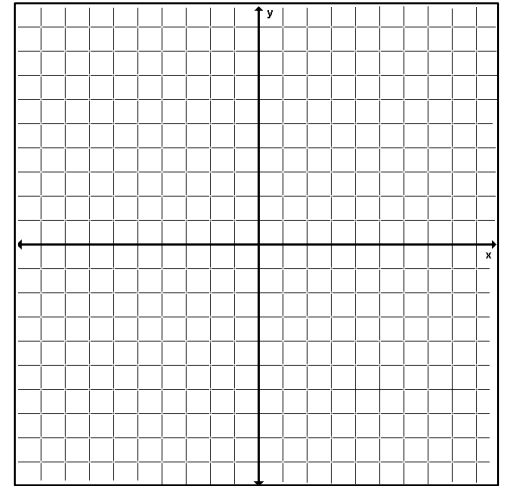

$a =$ _____ $b =$ _____   sum = _____

16) DABC has coordinates $A(3,7), B(10,6), C(6,4)$ DXYZ has coordinates $X(-8,-6), Y(-2,-1), Z(-6,-9).$

Are the triangles congruent?

(A) Yes   (B) No
(C) Unknown based on the information

17) Given that $\Delta ACD \cong \Delta GFK$, which of the following statements are true? (Select all that apply)

(A) $\angle A \cong \angle G$
(B) $\overline{CD} \cong \overline{GF}$
(C) $m\angle F + m\angle G = m\angle A + m\angle C$
(D) $m\angle D < m\angle G + m\angle F$
(E) ΔGFK is an acute triangle

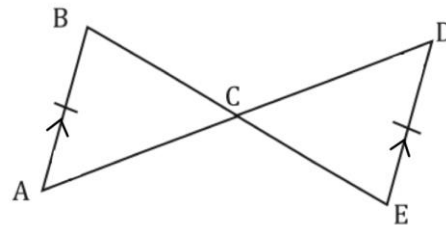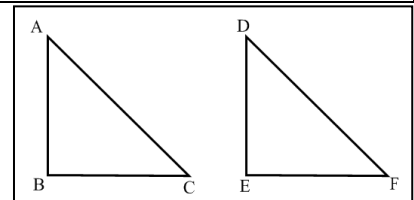18) Given the following diagram and that $\Delta ABC \cong \Delta DEC$, what conclusions can you draw? (Select all that apply)

(A) $\angle A \cong \angle E$
(B) $\angle B \cong \angle E$
(C) $\angle A$ and $\angle D$ are Alternate Interior Angles
(D) $\overline{BC} \cong \overline{CE}$
(E) $\overline{AC} \cong \overline{EC}$

Target 4: Prove Triangles Congruent

Use the diagram to answer questions 19 and 20. State the congruence that is needed to prove $\Delta ABC \cong \Delta DEF$ using the given postulate or theorem. Select all that apply.
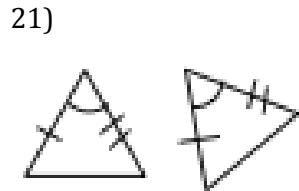

19) Given: $\overline{AB} \cong \overline{DE}, \angle B$ & $\angle E$ are right angles Use HL.

(A) $\overline{AB} @ \overline{DE}$ (B) $\overline{CA} @ \overline{FD}$ (C) $\angle A \cong \angle D$ (D) $\angle C \cong \angle F$ (E) $\overline{CB} @ \overline{FE}$
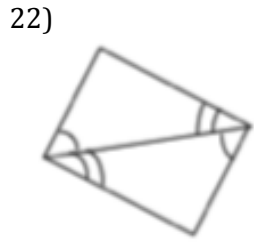
20) Given: $\angle A \cong \angle D, \overline{AB} \cong \overline{DE}$; Use SAS
(A) $\overline{AB} @ \overline{DE}$ (B) $\overline{CB} @ \overline{FE}$ (C) $\angle A \cong \angle D$ (D) $\angle C \cong \angle F$ (E) $\overline{CA} @ \overline{FD}$
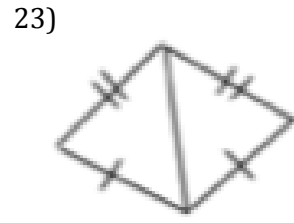
Directions: Determine which of the triangles are congruent. If the triangles are congruent, state a reason (SSS, SAS, ASA, HL, AAS). If there is not enough information, write "not enough information".
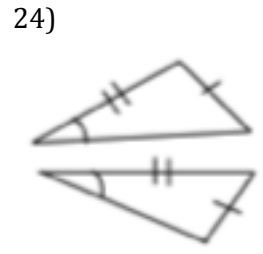
21)	22)	23)	24)

Congruent? YES or NO (21)

Reason? _____

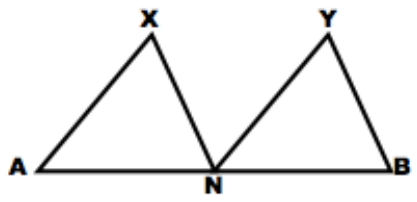Congruent? YES or NO (22)

Reason?_____

Congruent? YES or NO (23)

Reason? _____

Congruent? YES or NO (24)

Reason? _____
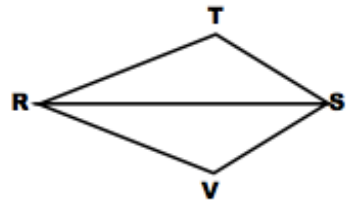

Free Response

25)   Given: N is the midpoint of $\overline{AB}$, $\overline{AX} \cong \overline{NY}$,
            $\overline{NX} \cong \overline{BY}$
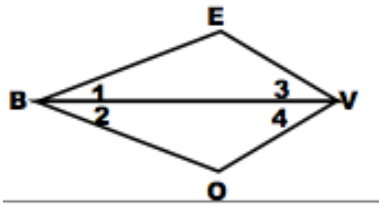   Prove: $\triangle XAN \cong \triangle YNB$

26)   Given: $\overline{RT} \cong \overline{RV}$, $\overline{TS} \cong \overline{VS}$

        Prove: $\angle TRS \cong \angle VRS$

Statements	Reasons
(1)	(1)
(2)	(2)
(3)	(3)
(4)	(4)
(5)	(5)

Statements	Reasons
(1)	(1)
(2)	(2)
(3)	(3)
(4)	(4)
(5)	(5)

27) Given: $\overline{BV}$ bisects $\angle EVO$, $\overline{BV}$ bisects $\angle EBO$

Prove: $\triangle BEV \cong \triangle BOV$

E

B 1 3 V
   2 4

O

Statements	Reasons
(1)	(1)
(2)	(2)
(3)	(3)
(4)	(4)
(5)	(5)
(6)	(6)

28) Given: $\overline{TP} \perp \overline{AS}$,
$\overline{AP} \cong \overline{SP}$

Prove: $\triangle ATP \cong \triangle STP$

T

A   S

P

Statements	Reasons
(1)	(1)
(2)	(2)
(3)	(3)
(4)	(4)
(5)	(5)