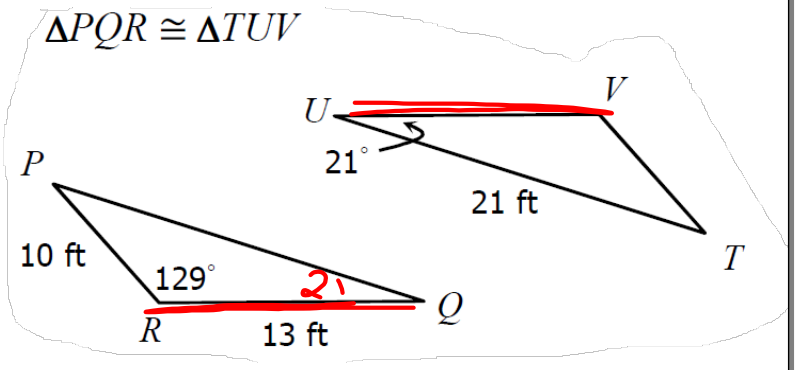
Do Now

$\Delta PQR \cong \Delta TUV$



$\cong$

$m\angle V =$ 129°

$m\angle Q =$ 21°

$m\angle P =$ 30°

$PQ =$ 21 ft

$UV =$ 13 ft

129+21=150

180-150=30

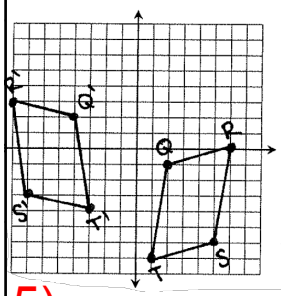
Feb 13-11:20 AM

3)

Parallelogram $QRST$ with vertices $Q(2, -1)$, $R(6, 0)$, $S(5, -6)$ and $T(1, -7)$:

(a) reflected in the y-axis

(b) translated 2 units left and 3 units up



Q' (-4, 2)

R' (-8, 3)

S' (-7, -3)

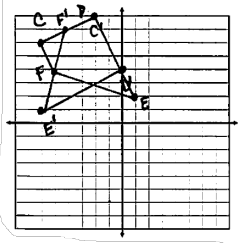
T' (-3, -4)

4)

Trapezoid $CDEF$ with vertices $C(-6, 6)$, $D(-2, 8)$, $E(1, 2)$, and $F(-5, 4)$:

(a) Translation: $(x, y) \rightarrow (x - 2, y - 8)$

(b) Rotation: 270° counterclockwise



C' (-2, 8)

D' (0, 4)

E' (-6, 1)

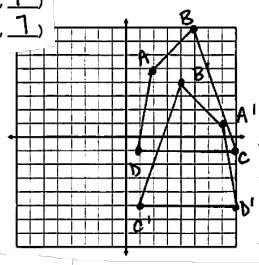
F' (-4, 7)

7)

Quadrilateral $ABCD$ with vertices $A(2, 5)$, $B(5, 8)$, $C(8, -1)$, and $D(1, 1)$:

(a) Translation: $(x, y) \rightarrow (x - 9, y - 4)$

(b) Reflection: in the y-axis



A' (7, 1)

B' (4, 4)

C' (1, -5)

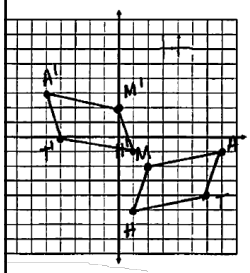
D' (8, -5)

5)

Parallelogram $MATH$ with vertices $M(2, -2)$, $A(7, -1)$, $T(6, -4)$, and $H(1, -5)$:

(a) Reflection: in the y-axis

(b) Translation: $(x, y) \rightarrow (x + 2, y + 4)$



M' (0, 2)

A' (-5, 3)

T' (-4, 0)

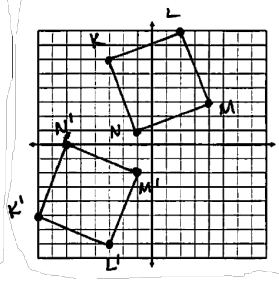
H' (1, -1)

6)

Square $KLMN$ with vertices $K(-3, 6)$, $L(-3, -5)$, $M(4, 3)$, and $N(-1, 1)$:

(a) Reflection: in the x-axis

(b) Translation: $(x, y) \rightarrow (x - 5, y + 4)$



K' (-8, -5)

L' (-3, -7)

M' (-1, -2)

N' (-6, 0)

Feb 13-11:06 AM

Translations

"Slide"

Right a units: (x, y) → (x + a, y)
Add a to the x-coordinate

Left a units: (x, y) → (x – a, y)
Subtract a from the x-coordinate

Up b units: (x, y) → (x, y + b)
Add b to the y-coordinate

Down b units: (x, y) → (x, y – b)
Subtract b from the y-coordinate

Reflections

"Flip"

Across the x- axis: Multiply each y –coordinate by -1.
(x,y) → (x, -y)

Across the y-axis: Multiply each x- coordinate by -1.
(x,y)→(-x,y)

Rotations

"Turn"

180° : (x, y) → (-x, -y)
Multiply both coordinates by -1

90° counterclockwise: (x, y) → (-y, x)
Multiply each y- coordinate by -1, then switch the x- and y- coordinate.

270 counterclockwise
(x, y) → (y, -x)
Multiply each x-coordinate by -1, then switch the x- and y- coordinates.

Dilations

"Reduce" or "Enlarge"

(x, y) → (kx, ky)
Multiply both coordinates by the scale factor 'K'.

Feb 13-11:39 AM