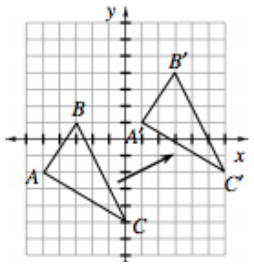
Unit 6 - Extra Practice

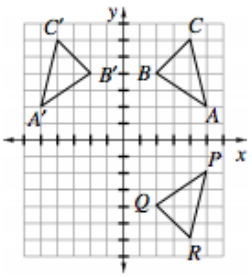
Transformations:

Translate (slide) ΔABC right six units and up three units. Give the coordinates of the new triangle.

The original vertices are $A(-5, -2)$, $B(-3, 1)$, and $C(0, -5)$. The new vertices are $A'(1, 1)$, $B'(3, 4)$, and $C'(6, -2)$. Notice that the change to each original point (x, y) can be represented by $(x + 6, y + 3)$.



Reflect (flip) ΔABC with coordinates $A(5, 2)$, $B(2, 4)$, and $C(4, 6)$ across the y-axis to get $\Delta A'B'C'$. The key is that the reflection is the same distance from the y-axis as the original figure. The new points are $A'(-5, 2)$, $B'(-2, 4)$, and $C'(-4, 6)$. Notice that in reflecting across the y-axis, the change to each original point (x, y) can be represented by $(-x, y)$.

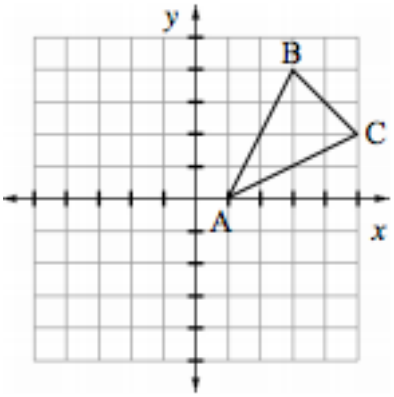


If you reflect ΔABC across the x-axis to get ΔPQR, then the new points are $P(5, -2)$, $Q(2, -4)$, and $R(4, -6)$. In this case, reflecting across the x-axis, the change to each original point (x, y) can be represented by $(x, -y)$.

Record the coordinates of the points after the move.

1) Slide figure A left 2 units and down 3 units.

Figure A



2) Flip figure A across the x-axis.

3) Slide figure A left 1 unit and down 2 units

4) Flip figure A across the y-axis

5) Figure A translates (x-3) and (y-2)

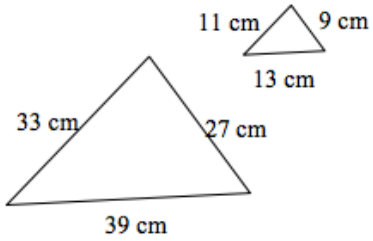
6) Figure A translates (x-5) and (y+1)

7) Figure A translates (x+2) and (y-4)

8) Figure A Flips over the x –axis and translates (x-2) and (y+1)

Similar Figures:

Determine if the figures are similar. If so, what is the scale factor?

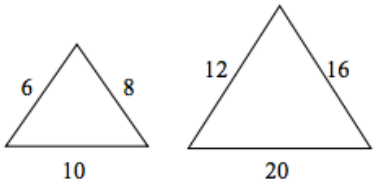


$\frac{39}{13} = \frac{33}{11} = \frac{27}{9} = \frac{3}{1}$ or 3

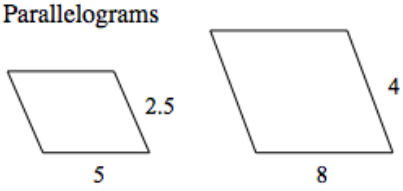
The ratios of corresponding sides are equal so the figures are similar. The scale factor that compares the small figure to the large one is 3 or 3 to 1. The scale factor that compares the large figure to the small figure is $\frac{1}{3}$ or 1 to 3.

Determine if the figures are similar. If so state the scale factor.

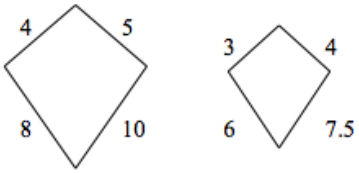
1.



2. Parallelograms



3. Kites



Scaling to solve percent problems:

Samantha wants to leave a 15% tip on her lunch bill of $12.50. What scale factor should be used and how much money should she leave?

Since tipping increases the total, the scale factor is (1 + 15%) = 1.15.
She should leave (1.15)(12.50) = $14.38 or about $14.50.

Carlos sees that all DVDs are on sales at 40% off. If the regular price of a DVD is $24.95, what is the scale factor and how much is the sale price?

If items are reduced 40%, the scale factor is (1 – 40%) = 0.60.
The sale price is (0.60)(24.95) = $14.97.

Example problems:

1) What is the total cost of a $39.50 family dinner after you add a 20% tip?

2) If the current cost to attend Magic land Park is now $29.50 per person, what will be the cost after a 8% increase?

3) Winter coats are on clearance at 60% off. If the regular price is $79, what is the sale price?

4) The company president has offered to reduce his salary 10% to cut expenses. If she now earns $175,000, what will be her new salary?

Solutions:

1) (–1, –3) (1, 2) (3, –1) **2)** (1, 0) (3, –4) (5, –2) **3)** (0,-2) (2,2) (-4,0) **4)** (–1, 0) (–3, 4) (–5, 2) **5)** (-2, -2) (0, -2) (2, 0)
6) (-4, 1) (-2, 5) (0, 3) **7)** (3, -4) (5, 0) (7, -2) **8)** (-1, 1) (1, -3) (3, -1)

1) similar; 2 **2)** similar; 8/5 = 1.6 **3)** not similar

1) $47.40 **2)** $31.86 **3)** $31.60 **4)** $157,500