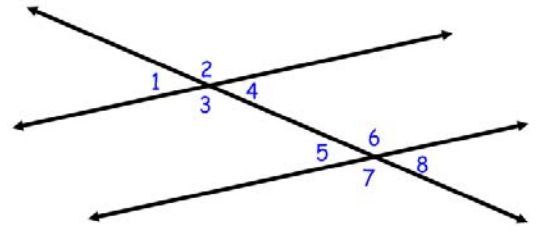
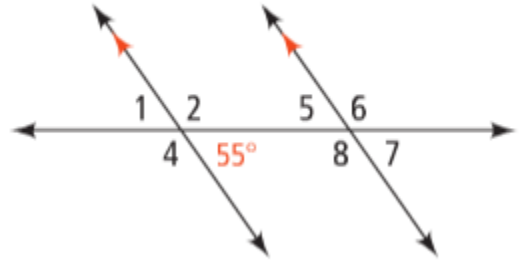


3.2 Properties of Parallel Lines

Corresponding Angles Postulate:



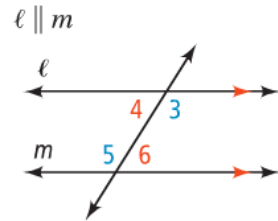
Find the degree measure of all the angles. Tell how you got them?



What other angle pair relationships are there?

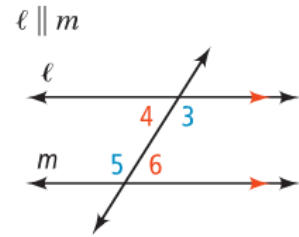
Alternate Interior Angles Theorem

If a transversal intersects two parallel lines, then



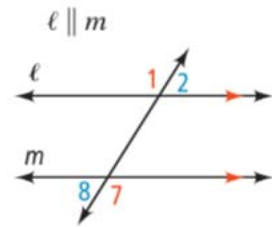
Same-Side Interior Angles Theorem:

If a transversal intersects two parallel lines, then



Alternate Exterior Angles Theorem

If a transversal intersects two parallel lines, then



Ex 1: Find the measures of all of the angles.

Ex 2: Find the measure of each angle indicated.

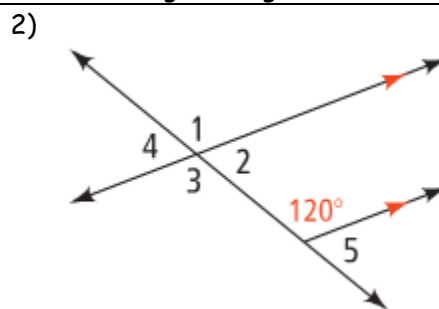
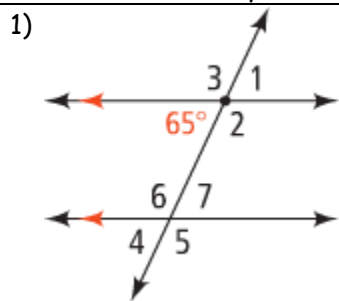
Ex 3: Solve for x.

Your try:

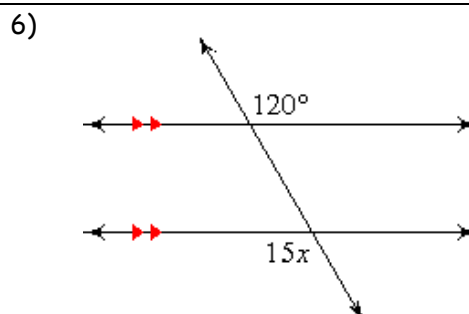
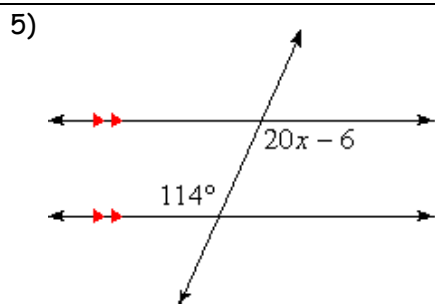
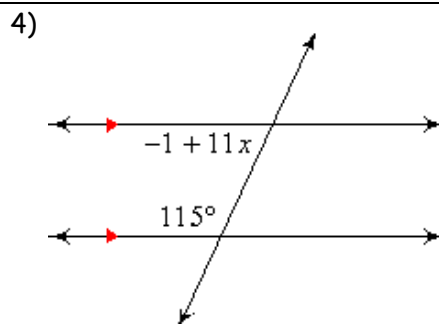
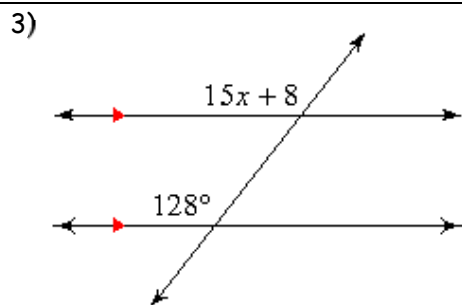
Summary:

3.2 Practice Problems

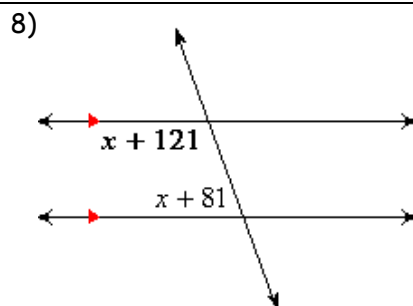
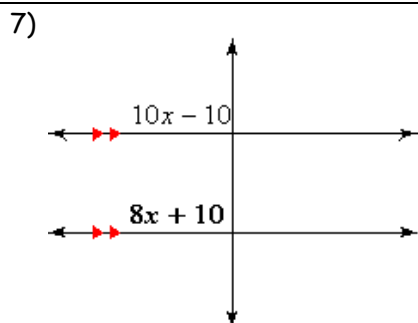
Directions: Identify all the numbered angles that are congruent to the given angle. JUSTIFY your answer.



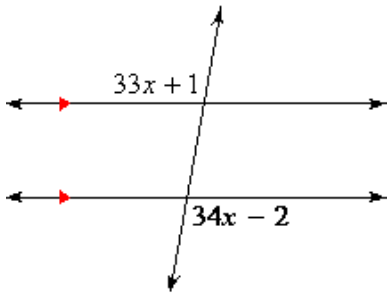
Directions: Solve for x .



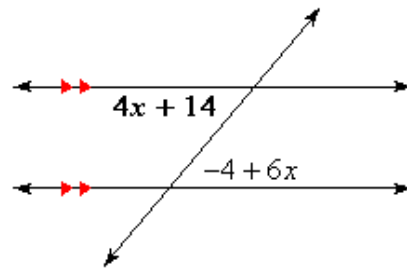
Directions: Find the measure of the angle indicated in bold.



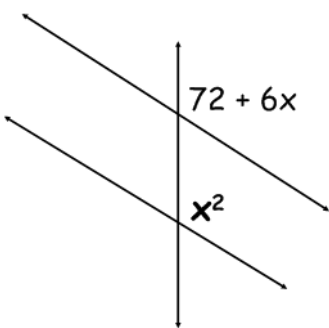
9)



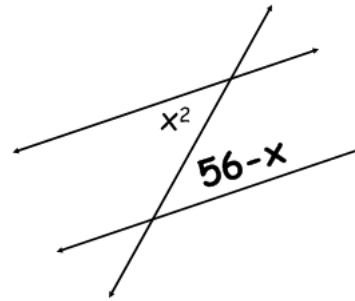
10)



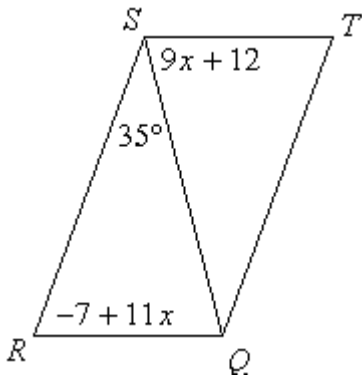
11)



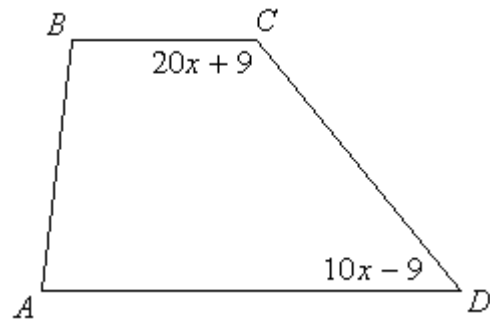
12)



13) Solve for x . Opposite sides of the figure are parallel.



14) Solve for x . The top and bottom sides are parallel.



Algebra Review

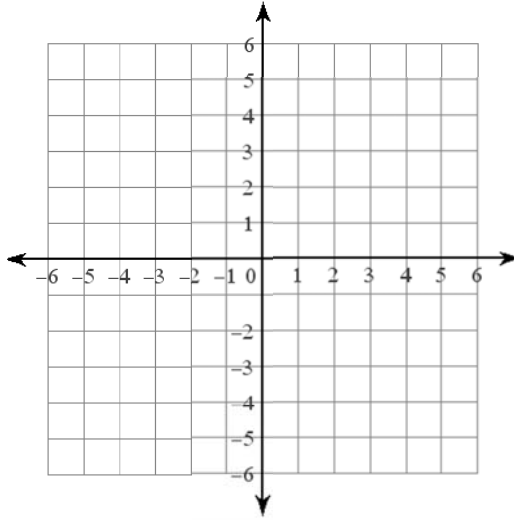
Solve: $2 = \frac{x}{3} - 4$

Solve: $15 = 2x - 13$

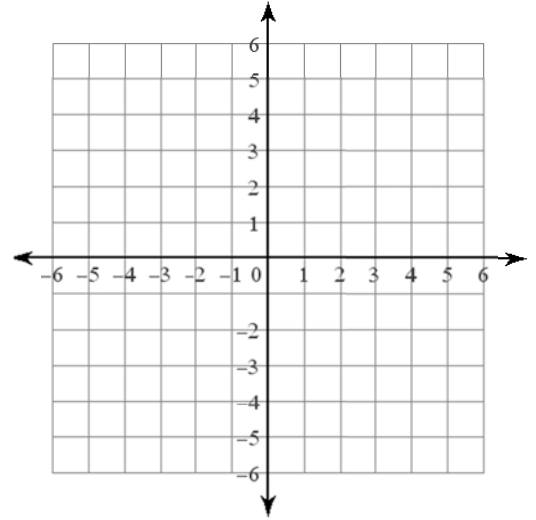
Factor: $k^2 + 14k + 45$

Factor: $16x^8 - 56x^5$

Graph: $y = \frac{1}{2}x - 3$



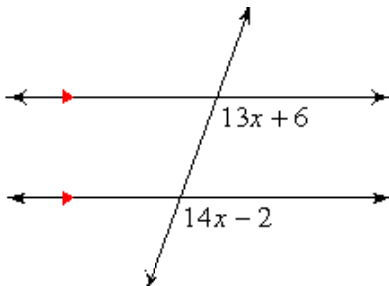
Graph: $y = 4$



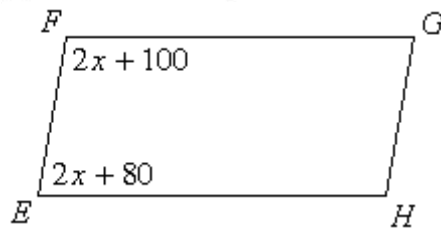
3.2 APPLICATION and EXTENSION

DIRECTIONS: SOLVE FOR X.

1)



2) Opposite sides are parallel.



3) New York City's streets are laid out in a grid so most of the streets all line up parallel and perpendicular to each other. However, there are a few streets that go diagonally through town. The picture below is a representation of BROADWAY in NYC. It's a transversal to the three parallel streets. Use this information to answer the following questions.

a) If $\angle a = 42^\circ$ and W. 62nd and W. 61st are parallel find the following:

$m\angle b =$ $m\angle c =$ $m\angle d =$ $m\angle e =$

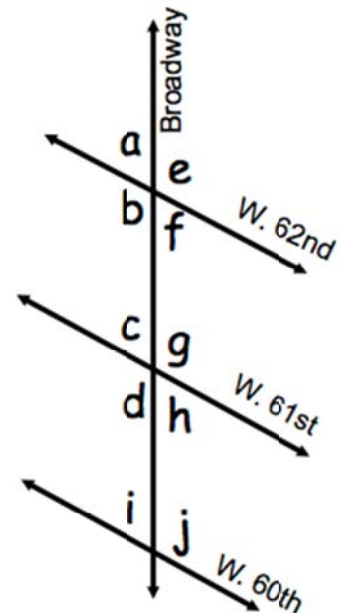
$m\angle f =$ $m\angle g =$ $m\angle h =$

b) If $\angle a = 42^\circ$ and W. 62nd is also parallel to W. 60th find the following:

$m\angle i =$ $m\angle j =$

c) What kind of angles are $\angle a$, $\angle c$, and $\angle i$?

d) If the lines are all parallel then what should be true about all three of the angles? Is it true?



4) Spiderman is slinging his way all over NYC. He starts on one building and is going to sling across to the building opposite which is parallel to the building he is on. He knows that the angle formed between his webbing and the building (on the bottom side) is 37° . Draw a picture and find the angle that the webbing and building (on the top side) form.



5) Write a two-column proof.

Given: $a \parallel b$, $\angle 1 \cong \angle 4$

Prove: $\angle 2 \cong \angle 3$

