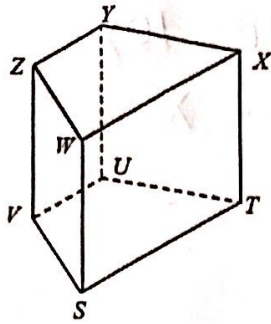


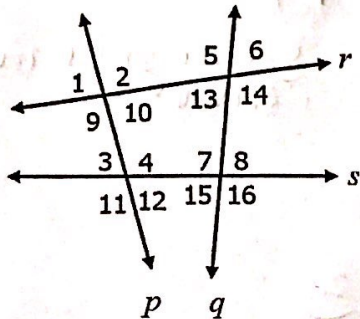
**3.1 Lines and Angles**

1. Use the diagram below to answer the following questions.



- a) Name all segments parallel to  $\overline{XT}$   $\overline{YU}, \overline{ZV}, \overline{WS}$
- b) Name all segments parallel to  $\overline{ZY}$   $\overline{NX}, \overline{VU}, \overline{ST}$
- c) Name all segments parallel to  $\overline{VS}$   $\overline{ZW}$
- d) Name a plane parallel to plane  $STU$   $WXYZ$
- e) Name a plane parallel to plane  $UVZ$   $TSW$
- f) Name all segments skew to  $\overline{SW}$   $\overline{UT}, \overline{YX}, \overline{YZ}, \overline{VU}$
- g) Name all segments skew to  $\overline{UT}$   $\overline{ZY}, \overline{WX}, \overline{ZW}, \overline{ZV}, \overline{SW}$

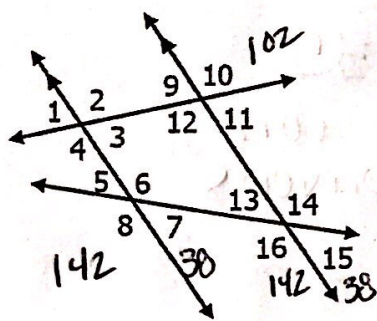
2. Use the diagram below to answer the following questions.



- a) Name the relationship between  $\angle 1$  and  $\angle 3$ . Corresp.
- b) Name the relationship between  $\angle 7$  and  $\angle 14$  alt. int
- c) Name the relationship between  $\angle 8$  and  $\angle 14$  same side int
- d) Name the relationship between  $\angle 6$  and  $\angle 4$  none
- e) Name the relationship between  $\angle 3$  and  $\angle 16$  alt. ext
- f) Name the relationship between  $\angle 10$  and  $\angle 13$  same side int

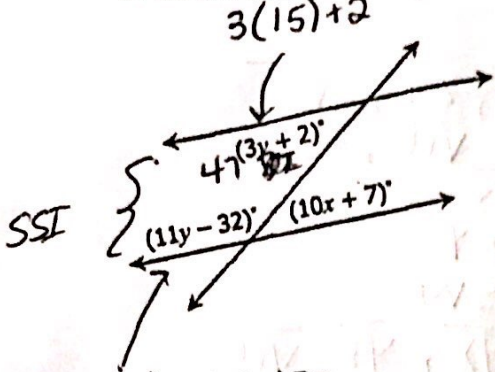
**3.2 Properties of Parallel Lines**

3. Given,  $\angle 7 = 38$  and  $m\angle 10 = 102$ , find the measure of the following angles. Give your reasoning.



- a)  $m\angle 8 = 142^\circ$  Linear pair w/  $\angle 7$
- b)  $m\angle 15 = 38^\circ$  Corresp to  $\angle 7$
- c)  $m\angle 4 = 102^\circ$  alt. ext  $\angle 10$
- d)  $m\angle 2 = 102^\circ$  vertical  $\angle 4$
- e)  $m\angle 5 = 38^\circ$  vertical to  $\angle 7$
- f)  $m\angle 16 = 142^\circ$  corresp to  $\angle 8$

4. Find the value of x and y.



$$3y + 2 + 11y - 32 = 180$$

$$14y - 30 = 180$$

$$14y = 210$$

$$y = 15$$

$$47 = 10x + 7$$

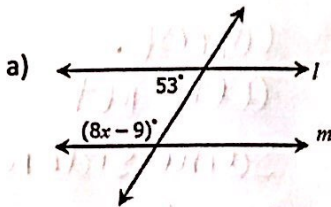
$$40 = 10x$$

$$4 = x$$

$$11(15) - 32 = 133$$

3.3 Proving Lines Parallel

5. Find x so that  $l \parallel m$  in the following. State the converse used.



$$8x - 9 + 53 = 180$$

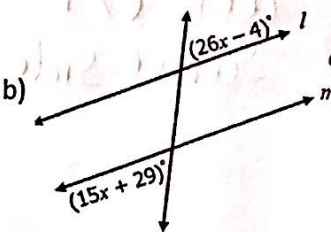
$$8x + 44 = 180$$

$$8x = 136$$

$$x = 17$$

x = 17

Converse same side int  
converse



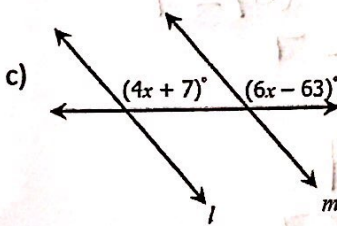
$$26x - 4 = 15x + 29$$

$$11x = 33$$

$$x = 3$$

x = 3

Converse alt. ext  
converse



$$4x + 7 = 6x - 63$$

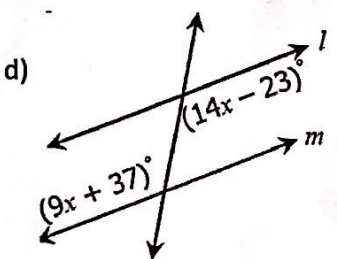
$$7 = 2x - 63$$

$$70 = 2x$$

$$35 = x$$

x = 35

Converse Corresp.  
converse



$$9x + 37 = 14x - 23$$

$$9x + 60 = 14x$$

$$60 = 5x$$

$$12 = x$$

x = 12

Converse alt. int  
converse