MTH 151 Homework #6 Key

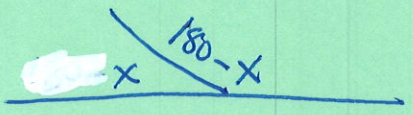
1a. $90-45=45°$ b. $90-31°=59°$

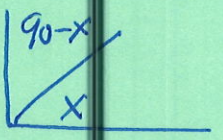
c. $90-88°=2°$ d. $90-24°=66°$

2a. $180-132=48°$ b. $180-26°=154°$

c. $180-93=87°$ d. $180-x°$

3.





$180-x=2(90-x)+40$

$180-x=180-2x+40$

$+2x \quad +2x$

$x=40$

4.a. $9y+7=2y+98$ angles $=124°$

$7y=91 \Rightarrow y=13$

b. $4x+7+35=90$

$4x+42=90$ angle $4x+7=55°$

$4x=48$

$x=12$

c. $2x+19=5x-2$ angles $=33°$

$-3x=-21$

$x=7$

d. $5x+55=2x+100$ $2x+100=130°$

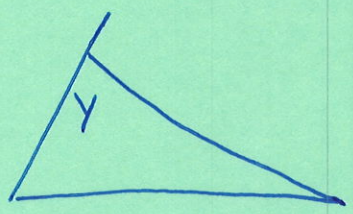
$3x=45$ $\angle 2=50°$

$x=15$

5. $a=70°$ vertical $c=65°$ sum of angles $e=70°$ corresponding

$b=45°$ Supplement $d=45°$ alt. int. $f=110°$ supplement

6. a.



$y = 180 - (5x+13)$

$180 - (5x+13) + 4x + 2 + 2x - 9 = 180$

$\cancel{180} - 5x - 13 + 4x + 2x + 2 - 9 = \cancel{180}$

$x - 20 = 0$

$x = 20$

b. $127 + 10x + 7 + 5x + 3 + 88 = 360$

$15x + 225 = 360$

$15x = 135 \Rightarrow x = 9$

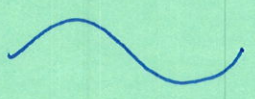
7. a. hexagon, concave

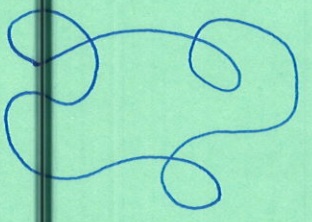
b. not a polygon (complex polygon)

c. hexagon, convex

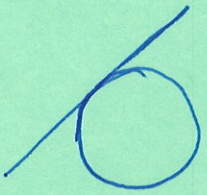
d. dodecagon, convex

8. a. 

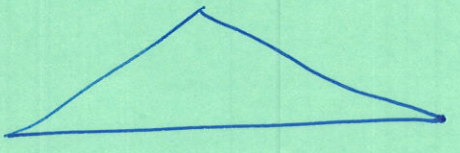
b. 

c. 

d. 

e. 

f. 

g. 

9. $\overleftrightarrow{PW}$ and $\overleftrightarrow{QR}$
$\overleftrightarrow{XY}$ and $\overleftrightarrow{SR}$
$\overleftrightarrow{YZ}$ and $\overrightarrow{PW}$

answers will vary

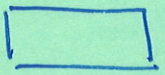
10. a. $n = 5$ $\quad 180(5-2) = 180(3) = 540°$

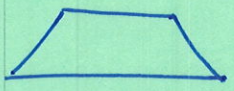
b. $n = 10$ $\quad 180(10-2) = 180(8) = 1440°$

c. $n = 8$ $\quad 180(8-2) = 180(6) = 1080°$

d. $n = 12$ $\quad 180(12-2) = 180(10) = 1800°$

11. a.  Square

b.  rectangle

c. trapezoid  or 

d.  parallelogram

12. a. $\frac{x+15}{11} = \frac{15}{7} \rightarrow 7(x+15) = 165$

$7x + 105 = 165$

$7x = 60$

$x = \frac{60}{7}$

b. $\frac{10}{6} = \frac{12.5}{x} \Rightarrow 10x = 75$

$x = 7.5$

13. a. $10^2 - 9^2 = 19$ $\quad x = a = \sqrt{19}$

b. $14^2 - 7^2 = 147$ $\quad a = \sqrt{147}$

c. $21^2 - 15^2 = 216$ $\quad x = \sqrt{216} = 6\sqrt{6}$

d. $62^2 - 23^2 = 3315$ $\quad a = \sqrt{3315}$

14.