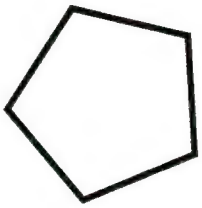
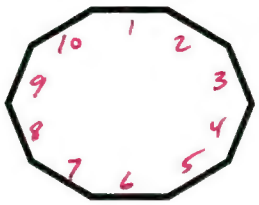
Name Answers Date

3.3 – Angles in a Polygon

Find the sum of the interior angles of the polygon. (Finding the number triangles may help). Show all work.

1) 

$S = (n-2)180$
$= (5-2)180$
$= 3(180)$
$= 540°$

2) 

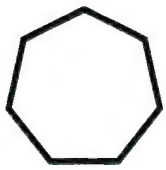
$S = (n-2)180$
$= (10-2)180$
$= (8)180$
$= 1440°$

3) 

$S = (n-2)180$
$= (8-2)180$
$= (6)180$
$= 1080°$

4) 

$S = (n-2)180$
$= (6-2)180$
$= (4)180$
$= 720°$

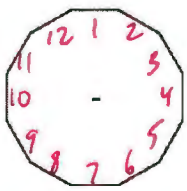
5) 

$S = (n-2)180$
$= (7-2)180$
$= (5)180$
$= 900°$

6) 

$S = (n-2)180$
$= (4-2)180$
$= (2)180$
$= 360°$

Find the measure of just ONE interior angle of the **regular** polygon. SHOW ALL WORK.

7) 

$S = (12-2)180$
$= (10)180$
$= 1800$

$\rightarrow \frac{1800}{12}$
$= 150°$

8) 

$S = (8-2)180$
$= (6)180$
$= 1080$

$\rightarrow \frac{1080}{8}$
$= 135°$

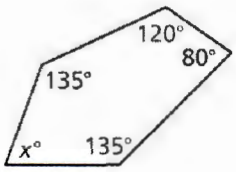
9) In pottery class, you are making a pot that is shaped as a regular hexagon. What is the measure of each angle in the regular hexagon

$S = (n-2)180$
$= (6-2)180$
$= (4)180 = 720°$

$\frac{720}{6} = 120°$

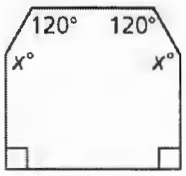
Find the measures of the interior angles. Show all algebraic work.

10)



$x + 135 + 120 + 80 + 135 = 540$
$x + 470 = 540$
$-470 \quad -470$
$x = 70°$

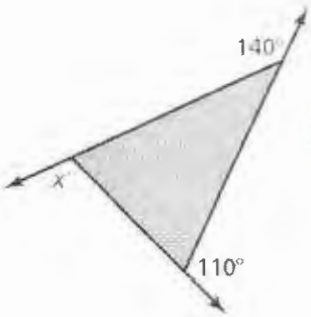
11)



$x + 120 + 120 + x + 90 + 90 = 720$
$2x + 420 = 720$
$-420 \quad -420$
$\frac{2x}{2} = \frac{300}{2}$
$x = 150°$

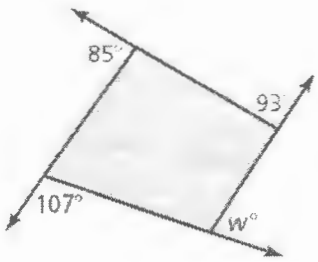
Find the measures of the exterior angles. Show all algebraic work.

12)



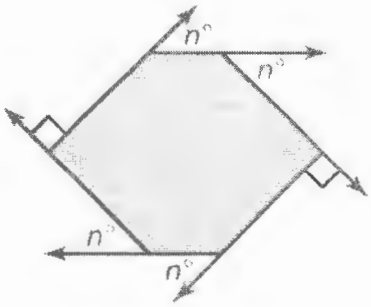
$x + 140 + 110 = 360$
$x + 250 = 360$
$-250 \quad -250$
$x = 110°$

13)



$w + 107 + 85 + 93 = 360$
$w + 285 = 360$
$-285 \quad -285$
$w = 75°$

14)



$n + n + 90 + n + n + 90 = 360$
$4n + 180 = 360$
$-180 \quad -180$
$\frac{4n}{4} = \frac{180}{4}$
$n = 45°$