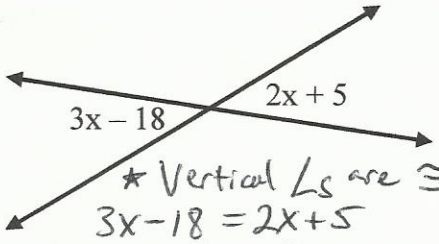
Geometry WS – Practice with Angle Relationships Name_____

1.



★ Vertical ∠s are ≅

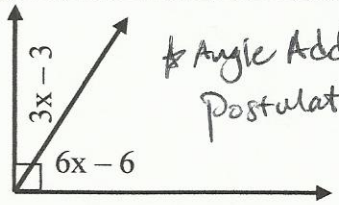
$3x-18=2x+5$

$x-18=5$

$\boxed{x=23}$

x = 23

2.



★ Angle Add. Postulate

$3x-3+6x-6=90$

$9x-9=90$

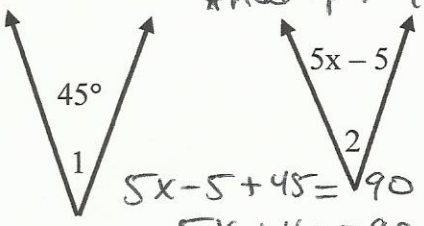
$9x=99$

$\boxed{x=11}$

x = 11

3. ∠1 and ∠2 are complementary.

★ Add up to 90°



$5x-5+45=90$

$5x+40=90$

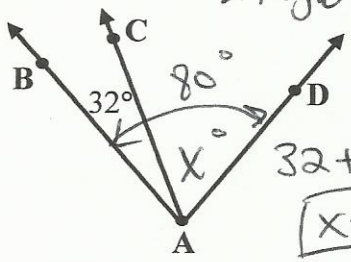
$5x=50$

$\boxed{x=10}$

x = 10

4. $m\angle BAD = 80$

★ Angle Add. Postulate

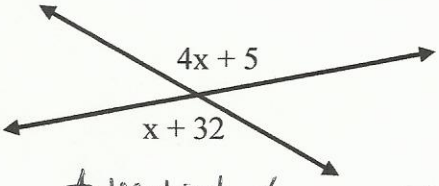


$32+x=80$

$\boxed{x=48}$

x = 48

5.



★ Vertical ∠s are ≅.

$4x+5=x+32$

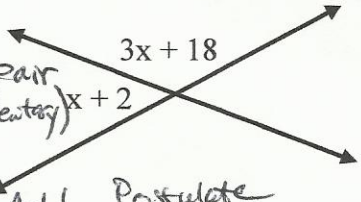
$3x+5=32$

$3x=27$

$\boxed{x=9}$

x = 9

6.



★ Linear pair (supplementary)

★ Angle Add. Postulate

$x+2+3x+18=180$

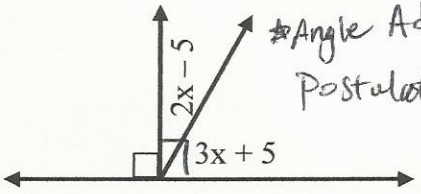
$4x+20=180$

$4x=160$

$\boxed{x=40}$

x = 40

7.



★ Angle Add. Postulate

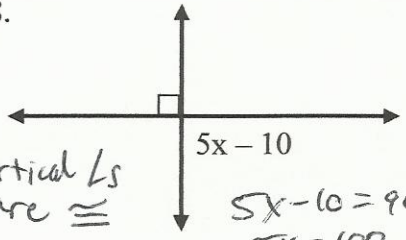
$2x-5+3x+5=90$

$5x=90$

$\boxed{x=18}$

x = 18

8.



★ vertical ∠s are ≅

$5x-10=90$

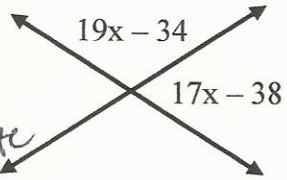
$5x=100$

$\boxed{x=20}$

x = 20

Geometry – WS Practice with Angle Relationships 2 Name_____

1.



Linear Pair Angle Addition Postulate

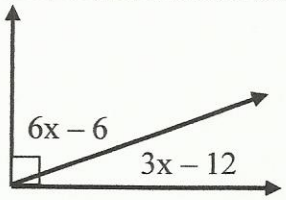
$19x - 34 + 17x - 38 = 180$

$36x - 72 = 180$

$\frac{36x}{36} = \frac{252}{36}$

x = 7

2.



Angle Addition Postulate

$6x - 6 + 3x - 12 = 90$

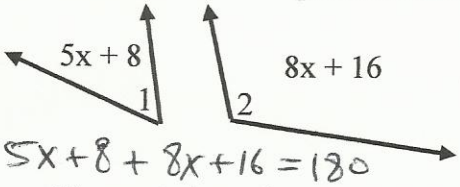
$9x - 18 = 90$

$9x = 108$

$\boxed{x = 12}$

x = 12

3. ∠1 and ∠2 are supplementary.



Add up to 180° (supplementary)

$5x + 8 + 8x + 16 = 180$

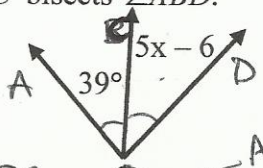
$13x + 24 = 180$

$\frac{3x}{3} = \frac{156}{3}$

$\boxed{x = 52}$

x = 52

4. $\overrightarrow{BC}$ bisects ∠ABD.



Angle Bisector divides angle into ≅ parts.

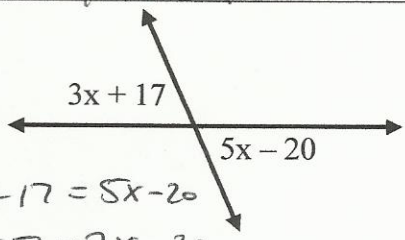
$5x - 6 = 39$

$5x = 45$

$\boxed{x = 9}$

x = 9

5.



Vertical ∠s are ≅.

$3x + 17 = 5x - 20$

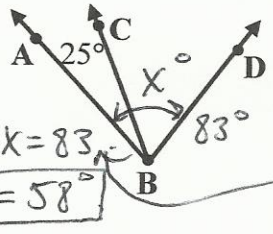
$17 = 2x - 20$

$37 = 2x$

$\boxed{x = 18.5}$

x = 18.5

6. $m\angle ABC = 25$ and $m\angle ABD = 83$



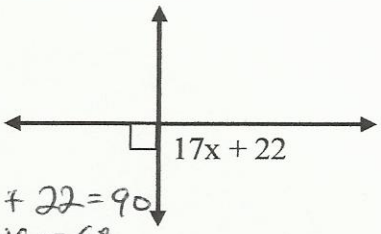
Angle Addition Postulate

$25 + x = 83$

$\boxed{x = 58°}$

$m\angle CBD = 58°$

7.



Linear pair (supplementary)

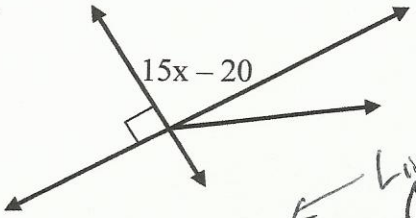
$17x + 22 = 90$

$17x = 68$

$\boxed{x = 4}$

x = 4

8.



Linear Pair (supplementary)

$15x - 20 = 90$

$15x = 110$

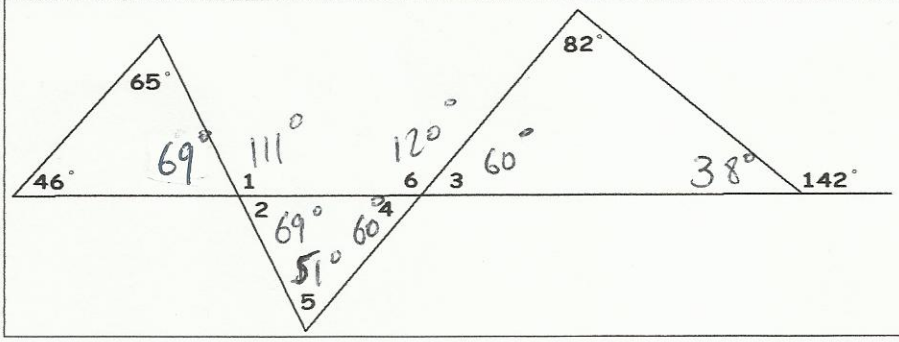
$\boxed{x = 7.\overline{3}}$

x = $7.\overline{3}$

Geometry – Practice with Angle Relationships Name_____

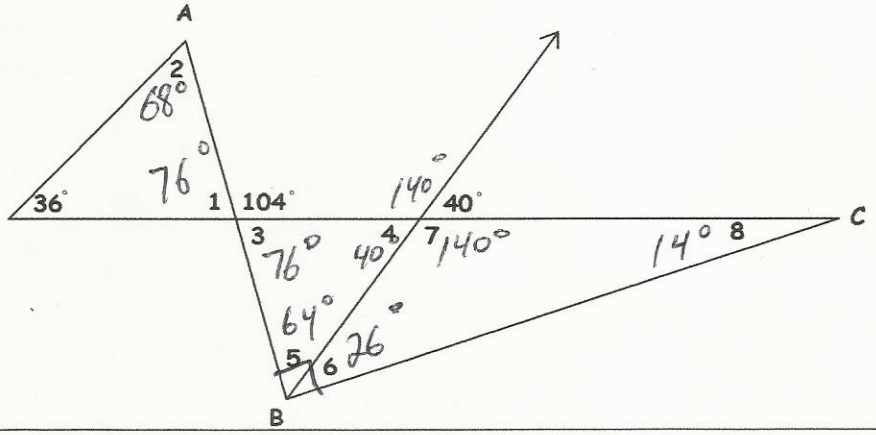
Pd_____

Find the measure of each numbered angle in this figure.



m∠1 = 111°	m∠2 = 69°
m∠3 = 60°	m∠4 = 60°
m∠5 = 51°	m∠6 = 120°

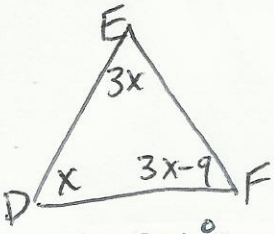
If $\overline{AB}$ is perpendicular to $\overline{BC}$, find the measure of each angle in this figure.



m∠1 = 76°	m∠2 = 68°
m∠3 = 76°	m∠4 = 40°
m∠5 = 64°	m∠6 = 26°
m∠7 = 140°	m∠8 = 14°

Write an equation and solve for all three angles in each of these situations. Remember that the three angles in a triangle always add up to 180 degrees. (for example: m∠D + m∠E + m∠F = 180)

1. In ΔDEF, m∠E is three times m∠D and m∠F is 9 less than m∠E. What is the measure of each?



$3x + 3x - 9 + x = 180$

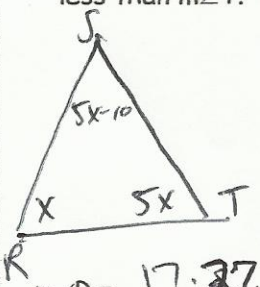
$7x - 9 = 180$

$7x = 189$

$x = 27$

m∠D = 27°, m∠E = 81°, m∠F = 72°

2. In ΔRST, m∠T is 5 more than m∠R and m∠S is 10 less than m∠T. What is the measure of each?



$5x - 10 + x + 5x = 180$

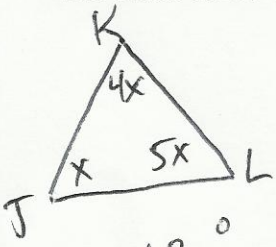
$11x - 10 = 180$

$\frac{11x}{11} = \frac{190}{11}$

$x = 17.27$

m∠R = 17.27°, m∠S = 86.35°, m∠T = 76.35°

3. In ΔJKL, m∠K is four times m∠J, and m∠L is five times m∠J. What is the measure of each?



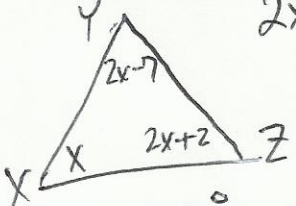
$4x + 5x + x = 180$

$10x = 180$

$x = 18$

m∠J = 18°, m∠K = 72°, m∠L = 90°

4. In ΔXYZ, m∠Z is 2 more than twice m∠X, and m∠Y is 7 less than twice m∠X. What is the measure of each?



$2x - 7 + 2x + 2 + x = 180$

$5x - 5 = 180$

$5x = 185$

$x = 37$

m∠X = 37°, m∠Y = 67°, m∠Z = 76°