Linear Pair

$$angle + angle = 180$$
$$a + b = 180$$

vertical angles

$$\underline{angle} = \underline{angle}$$
$$c = d$$

Parallel lines

Alternate Interior: 3 & 6
- congruent   4 & 5
  $$\underline{angle} = \underline{angle}$$

Alternate Exterior: 1 & 8
- congruent   2 & 7
  $$\underline{angle} = \underline{angle}$$

Corresponding : 1&5, 2&6, 3&7, 4&8
- congruent
  $$\underline{angle} = \underline{angle}$$

Same Side Interior : 4 & 6, 3 & 5
- SUPPLEMENTARY!
  $$\underline{angle} + \underline{angle} = 180$$

Isoscles
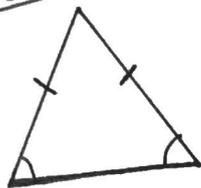
- 2 congruent legs
- base angles congruent
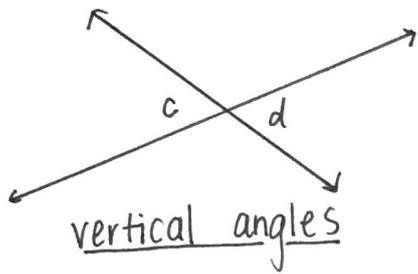
Equilateral
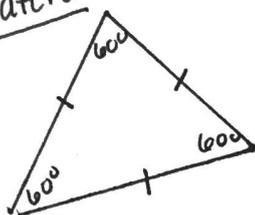
- All sides congruent
- All angles 60°

Factoring!

$\boxed{a = 1}$

$$x^2 + 11x + 24$$
$$(x + 8)(x + 3)$$

$\boxed{a > 1}$

$$2x^2 + 11x + 5$$
$$(2x + 1)(x + 5)$$

Test Review – Factoring Polynomials

Section 1 - Factor the greatest common factor from each polynomial

1. $3x + 9$ $3(x+3)$

2. $6x - 15$ $3(x-5)$

3. $8y + 18$ $2(4y+9)$

4. $2x^3 - 6x^2$ $2x^2(x-3)$

5. $y^4 - y^2$ $y^2(y^2-1)$

6. $6n^2 + 12n + 15$ $3(2n^2 + 4n + 5)$

7. $8y^2 - 10y + 12$ $2(4y^2 - 5y + 6)$

8. $5x^3 - 6x^2 + 7x$ $x(5x^2 - 6x + 7)$

9. $4y^5 - 8y^4 - 2y^2$ $2y^2(2y^3 - 4y^2 - 1)$

Section 2 - Factor each polynomial into two binomials

1.) $a^2 + 12a + 27$ $(a+9)(a+3)$

2.) $y^2 + 21y + 110$ $(a+11)(a+10)$

3.) $n^2 - 4n + 4$ $(n-2)(n-2)$

4.) $x^2 - 12x + 20$ $(x-10)(x-2)$

5.) $x^2 + 11x - 12$ $(x+12)(x-1)$

6.) $r^2 - 10r + 9$ $(n-1)(n-9)$

7.) $n^2 - 10n + 24$ $(n-6)(n-4)$

8.) $x^2 - 8x - 48$ $(n-12)(n+4)$

9.) $w^2 - 15w + 14$ $(n-14)(n-1)$

10.) $a^2 - 20a + 99$ $(a-9)(a-11)$

11.) $m^2 - 8m - 33$ $(m-11)(m+3)$

12.) $c^2 - 2c + 1$ $(c-1)(c-1)$

13.) $x^2 - 12x + 32$ $(x-8)(x-4)$

14.) $y^2 - 4y + 3$ $(y-3)(y-1)$

15.) $a^2 + 4a - 5$ $(a-1)(a+5)$

16.) $x^2 - 15x + 50$ $(x-5)(x-10)$

17.) $x^2 + 17x + 66$ $(x+6)(x+11)$

18.) $m^2 - 6m + 5$ $(m-1)(m-5)$

19.) $x^2 + 7x - 8$ $(x+8)(x-1)$

20.) $x^2 + 9x - 36$ $(x+12)(x-3)$

$$\begin{array}{r} \frac{60}{} \\ 1 \quad 60 \\ 2 \quad 30 \\ 3 \quad 20 \\ 4 \quad 15 \end{array}$$

Section 3 - Factor each polynomial into two binomials

1. $3x^2 + 11x + 10$

$(3x + 5)(x + 2)$

$3x^2 + 6x + 5x + 10$ ✓

2. $2n^2 + 10n + 8$

$2(n^2 + 5n + 4)$

$2(n+1)(n+4)$

3. $5a^2 + 19a + 12$

$(5a + 4)(a + 3)$

$5a^2 + 15a + 4a + 12$ ✓

4. $2y^2 + 11y + 12$

$(2y + 3)(y + 4)$

$2y^2 + 8y + 3y + 12$ ✓

5. $3m^2 + 18m + 24$ $3(m^2 + 6m + 8)$

or $(3m + 6)(m + 4)$

$3(m+2)(m+4)$

6. $5c^2 + 23c + 18$

$(5c + 18)(c + 1)$

$$\begin{array}{r} \frac{24}{} \\ 1 \quad 24 \\ 2 \quad 12 \\ 3 \quad 8 \\ 4 \quad 6 \end{array}$$

(27)

5

$$\begin{array}{r} \frac{18}{} \\ 1 \quad 18 \\ 2 \quad 9 \\ 3 \quad 6 \end{array}$$

Algebra 1

Name_____ ID: 1

Study Guide

Date_____ Period____

Identify each pair of angles as corresponding, alternate interior, alternate exterior, consecutive interior, vertical, or adjacent.

1)

Alt Exterior

2)

Corresponding

3)

adjacent/
linear pair

4)

Alt interior

5)

vertical
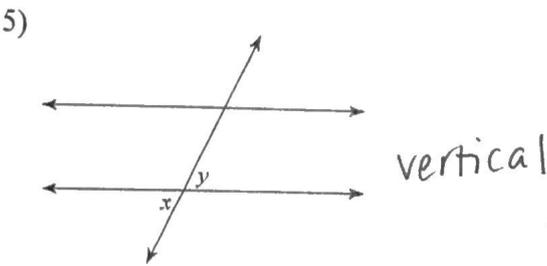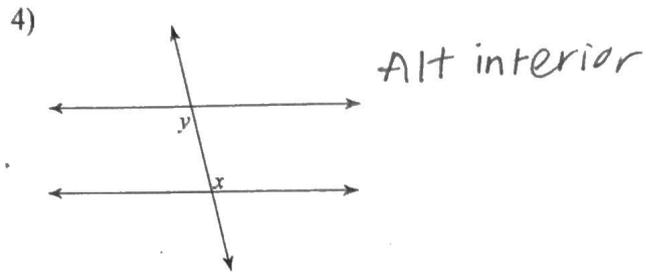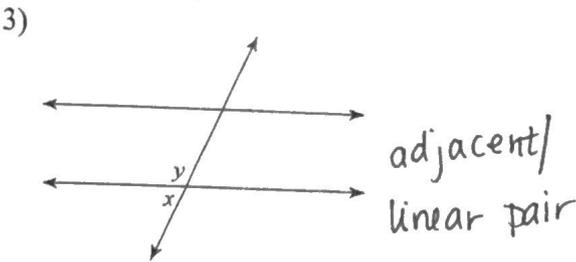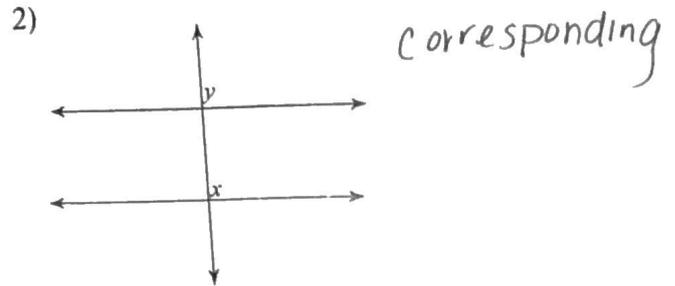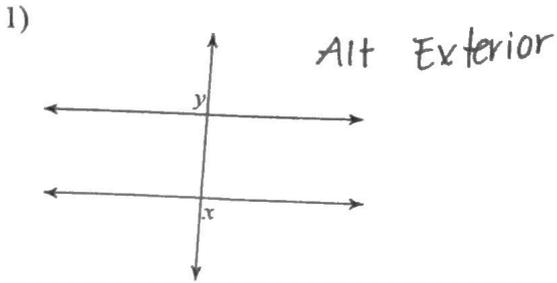
Find the measure of each angle indicated.

6)

Corresponding

? = 60°

60°

7)

4180
-95
85

Linear Pair

? = 85

95°
?

8)

corr.

? = 58

58°

9)

Alt Int

? = 126

126°

?

10)

Corr

81 = ?

81°

?

-1-
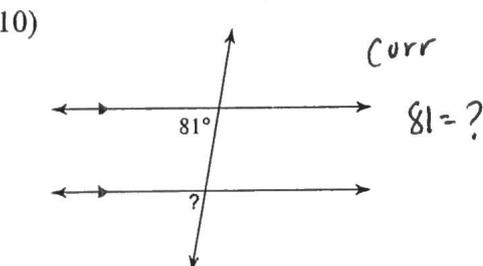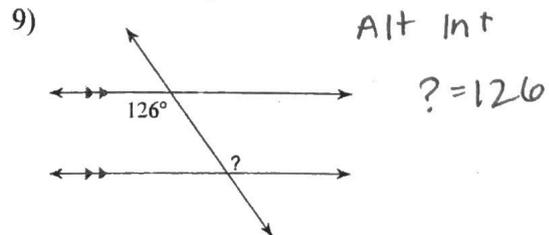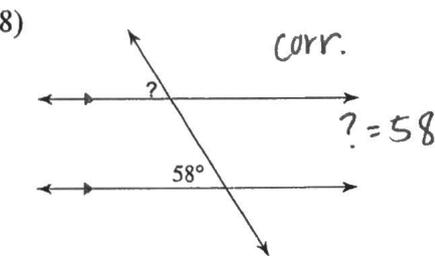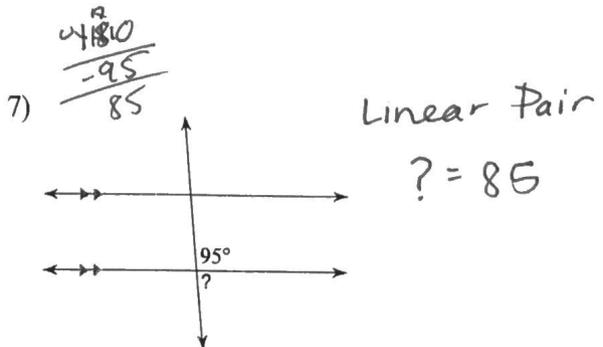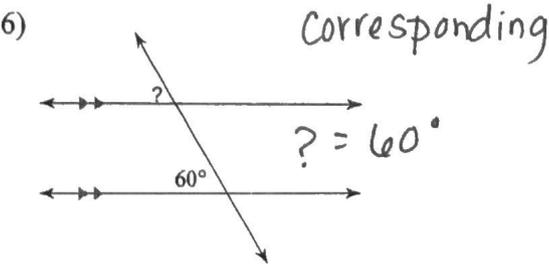
Solve for x.

vert

11)

$9x + 17 = 125$

$9x = 108$

$\boxed{x = 12}$

9x + 17

125°

12)

corr.

5 + 5x

50°

$5 + 5x = 50$

$5x = 45$

$\boxed{x = 9}$

13)

LP
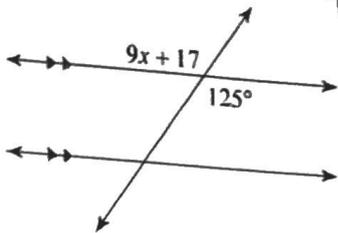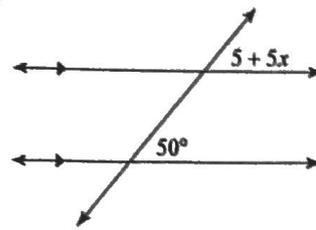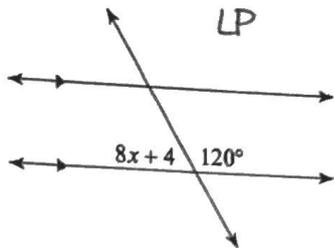
8x + 4   120°

$120 + 8x + 4 = 180$

$8x + 124 = 180$

$8x = 56$

$\boxed{x = 7}$

14)

Alt int.

130°
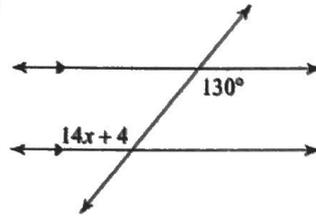
14x + 4

$130 = 14x + 4$

$126 = 14x$

$\boxed{9 = x}$

15)
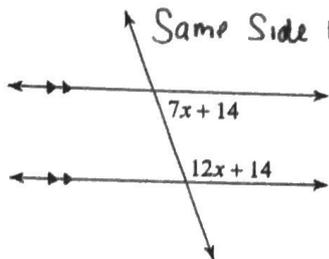
Same Side Int.

7x + 14

12x + 14

$7x + 14 + 12x + 14 = 180$

$19x + 28 = 180$

$19x = 152$

$x = 8$

$\boxed{x = 8}$

Find the measure of the angle indicated in bold.

16)
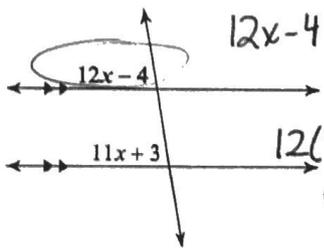
12x − 4

11x + 3

$12x - 4 = 11x + 3$

$x = 7$

$12(7) - 4$

$84 - 4$

$\boxed{80}$

17)

x + 100   x + 94
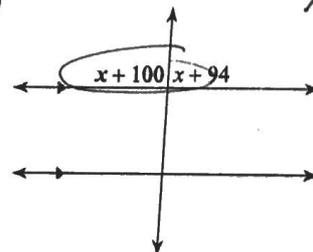
$x + 100 + x + 94 = 180$

$2x + 194 = 180$

$2x = -14$

$x = -7$

$(-7) + 100 = \boxed{93}$

18)

x + 58
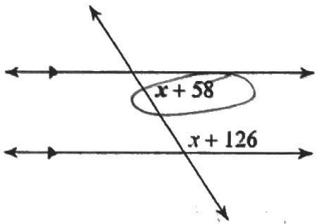
x + 126

$x + 58 + x + 126 = 180$

$2x + 184 = 180$

$2x = -4$

$x = -2$

$-2 + 58 = \boxed{56}$

19)
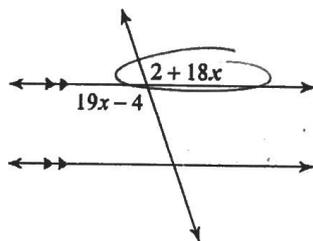
2 + 18x

19x − 4

$2 + 18x = 19x - 4$

$6 = x$

$2 + 18(6)$

$\boxed{110}$

20)
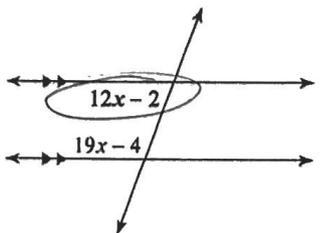
12x − 2

19x − 4

$12x - 2 + 19x - 4 = 180$

$31x = 186$

$x = 6$

$12(6) - 2 = \boxed{70}$

Find the value of x.

21)

ISOS

11   x = 11

22) **ISOS**

9   x = 9

-2-

23) ISOS

8

$x = 8$

24) Eq

7

$x = 7$

25) ISOS

6

$x = 6$

26)

x

9

$x = 9$

27)

7

$x = 7$

28)

8

$x = 8$

29) Eq

10

$x = 10$

30) ISOS

x

6

$x = 6$

31)

65°

65°

x
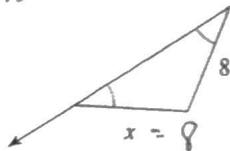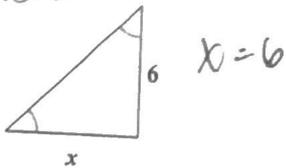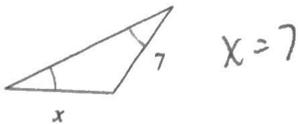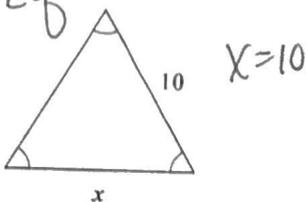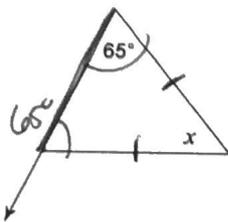
$65 + 65 + x = 180$

$130 + x = 180$

$x = 50$

32) Eq

x

60°

$x = 60$

33)

x

94°

$x + x + 94 = 180$

$2x = 86$

$\boxed{x = 43}$

34)

x

47°
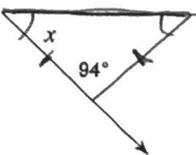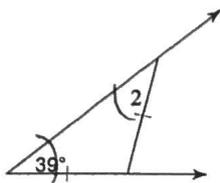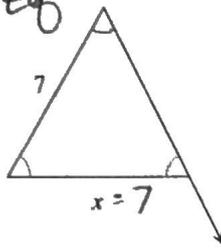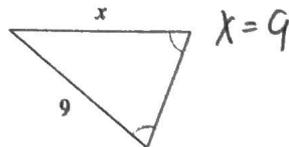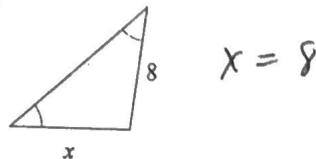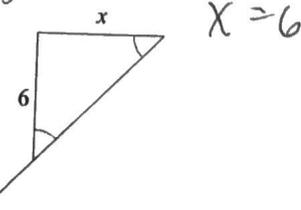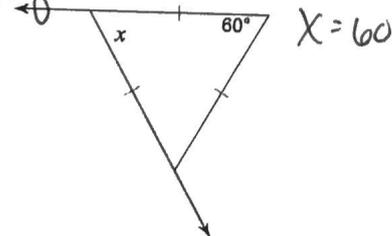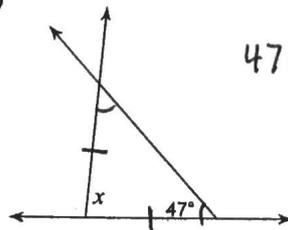
$47 + 47 + x = 180$

$94 + x = 180$

$\boxed{x = 86}$

35) $m\angle 2 = x + 50$

2

39°

$x + 50 = 39$

$\boxed{x = -11}$

36) $m\angle 2 = x + 126$

30°

2

30°
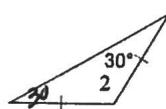
$30 + 30 + (m\angle 2) = 180$

$60 + (m\angle 2) = 180$

$m\angle 2 = 120$

$\boxed{x = -6}$

$x + 126 = 120$

-3-

37) $m\angle 2 = 4x - 8$
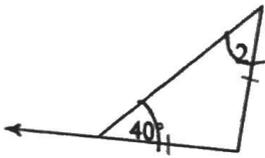
$4x - 8 = 40$
$4x = 48$
$\boxed{X = 12}$

38) $m\angle 2 = 3x + 10$
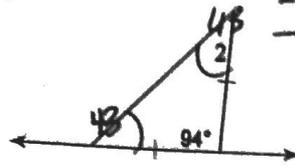
$\begin{array}{r} 180 \\ -94 \\ \hline 86 \end{array}$ 43

$2\overline{)86}$

$3x + 10 = 43$
$3x = 33$
$\boxed{X = 11}$

39) $m\angle 2 = 6x - 11$
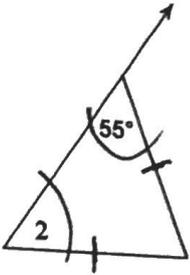
$6X - 11 = 55$
$6X = 66$
$X = 11$

Find the value of x.

40)

$\begin{array}{r} 180 \\ -70 \\ \hline 110 \end{array} = 2X$

$\boxed{55 = X}$ (circled)

70° 2x°
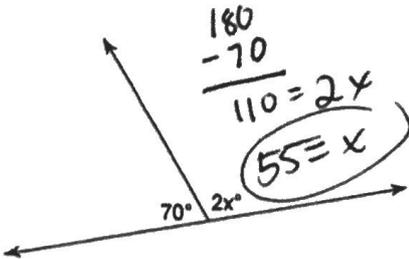
41)
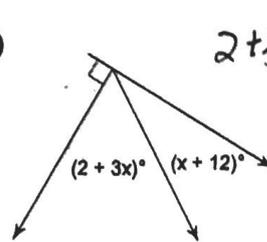
$2 + 3x + x + 12 = 90$
$4x + 14 = 90$
$4x = 76$
$X = 19$

$(2 + 3x)°$ $(x + 12)°$

42)
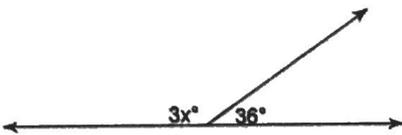
3x° 36°

$3x + 36 = 180$
$3x = 144$
$X = 48$

43)
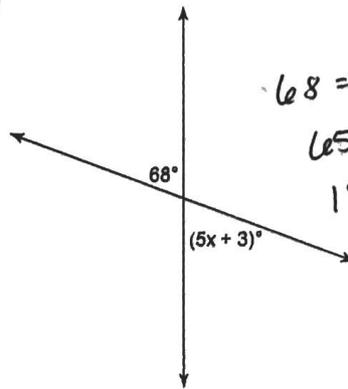
68° $(5x + 3)°$

$68 = 5x + 3$
$65 = 5x$
$13 = x$

44)

$89 = 5x + 4$
$85 = 5x$
$\boxed{17 = X}$

(5x + 4)° 89°

-4-