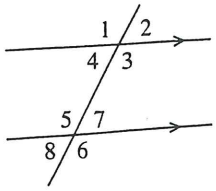
PARALLEL LINES AND TRANSVERSALS: ANSWERS

1.



Name an angle that is:

a) vertically opposite to ∠3 — *1*

b) corresponding to ∠5 — *1*

c) alternate interior to ∠4 — *7*

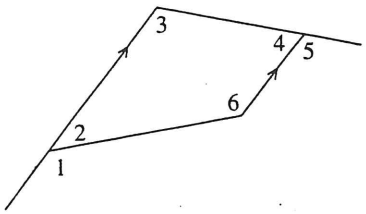
d) interior on the same side of the transversal to ∠7 — *3*

e) corresponding to ∠6 — *3*

f) alternate interior to ∠5 — *3*

g) interior on the same side of the transversal to ∠4 — *5*

2.



Name an angle that is:

a) alternate interior to ∠1 — *6*

b) corresponding to ∠3 — *5*

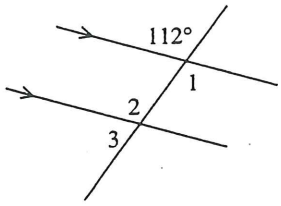
c) supplementary to ∠1 — *2*

d) supplementary to ∠6 — *2*

e) interior on the same side of the transversal to ∠3 — *4*

3. Find the measure of each required angle.

a)

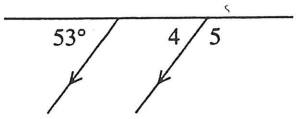


∠1 = *112°*

∠2 = *112°*

∠3 = *68°*

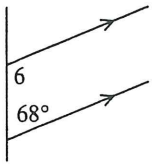
b)



∠4 = *53°*

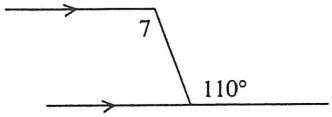
∠5 = *127°*

c)



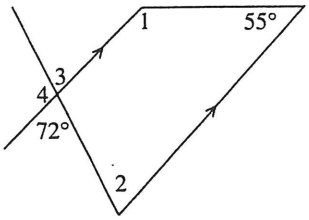
∠6 = *112°*

d)



∠7 = *110°*

e)



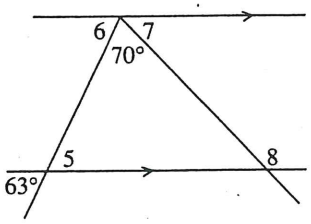
∠1 = *125°*

∠2 = *72°*

∠3 = *72°*

∠4 = *108°*

f)



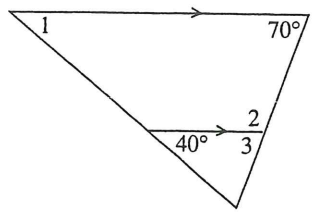
∠5 = *63°*

∠6 = *63°*

∠7 = *47°*

∠8 = *133°*

g)

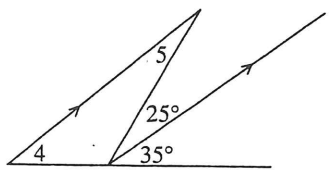


∠1 = *40°*

∠2 = *110°*

∠3 = *70°*

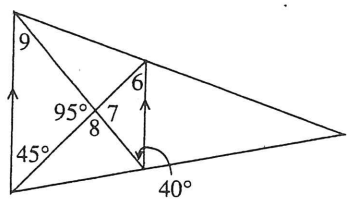
h)



∠4 = *35°*

∠5 = *25°*

i)



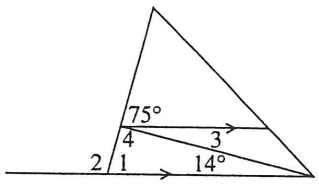
∠6 = *45°*

∠7 = *95°*

∠8 = *85°*

∠9 = *40°*

j)



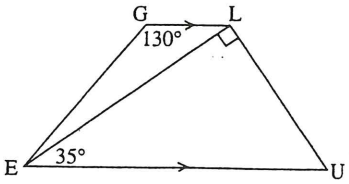
∠1 = *75°*

∠2 = *105°*

∠3 = *14°*

∠4 = *91°*

k)



∠GLE = *35°*

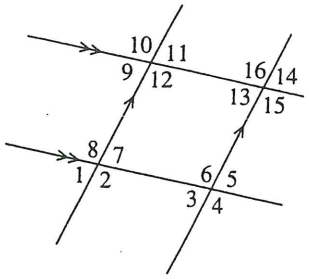
∠GLU = *125°*

∠LUE = *55°*

∠GEU = *50°*

∠GEL = *15°*

4.



Name:

a) an ∠ vertically opposite to ∠10 — *12*

b) 2 ∠s alternate interior to ∠13 — *5, 11*

c) 2 ∠s corresponding to ∠1 — *3, 9*

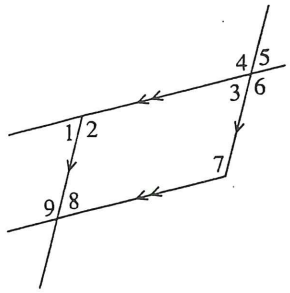
d) 2 interior ∠s on the same side of the transversal to ∠6 — *13, 7*

e) 3 ∠s supplementary to ∠8 — *1, 7, 9*

f) 3 ∠s congruent to ∠7 — *1, 3, 5, 9, 11*

(13, 14)

5.



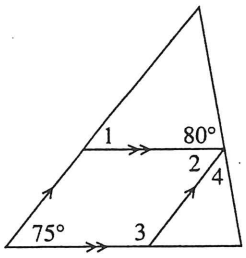
Classify each pair of angles below by the most appropriate letter.

S = supplementary ∠s
V = vertically opposite ∠s
C = corresponding ∠s
A = alternate interior ∠s
I = interior ∠s on the same side of the transversal
N = none of these

a) ∠1 and ∠3	*C*	f) ∠1 and ∠6	*N*
b) ∠9 and ∠8	*S*	g) ∠2 and ∠8	*I*
c) ∠4 and ∠6	*V*	h) ∠2 and ∠4	*A*
d) ∠7 and ∠6	*A*	i) ∠7 and ∠8	*I*
e) ∠4 and ∠7	*C*	j) ∠8 and ∠3	*N*

6. Find the measure of each numbered angle.

a)



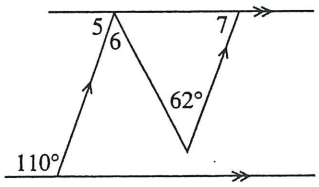
∠1 = *75°*

∠2 = *75°*

∠3 = *105°*

∠4 = *25°*

b)

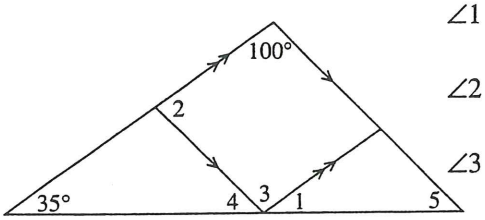


∠5 = *70°*

∠6 = *62°*

∠7 = *70°*

c)



∠1 = *35°*

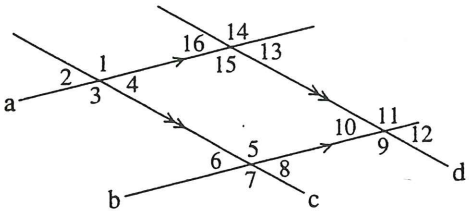
∠2 = *80°*

∠3 = *100°*

∠4 = *45°*

∠5 = *45°*

7.



Name the two parallel segments and the transversal that form:

	Segments		Transversal
a) alternate interior ∠s 3 and 5	*a*	*b*	*c*
b) corresponding ∠s 5 and 11	*c*	*d*	*b*
c) interior ∠s 13 and 11 on the same side of the transversal	*a*	*b*	*d*
d) alternate interior ∠s 15 and 1	*c*	*d*	*a*

8. If two parallel lines are intersected by a transversal,

a) can two corresponding angles be complementary? Explain your answer.

Yes. Both = 45°.

b) can two alternate interior angles be supplementary? Explain your answer.

Yes. Both = 90°.

c) can two interior angles on the same side of the transversal be obtuse? Explain your answer.

No, because 2 obtuse angles cannot add to 180°.