1. For each problem, determine the value of each unknown and give a reason for your answer.

a)
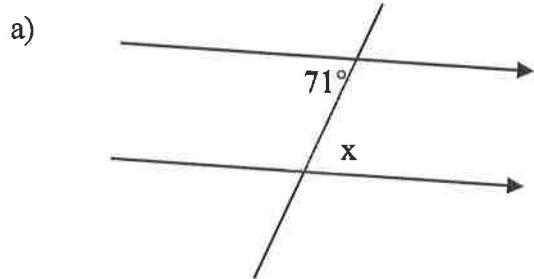
$x = 71°$ (alternate interior)

b)
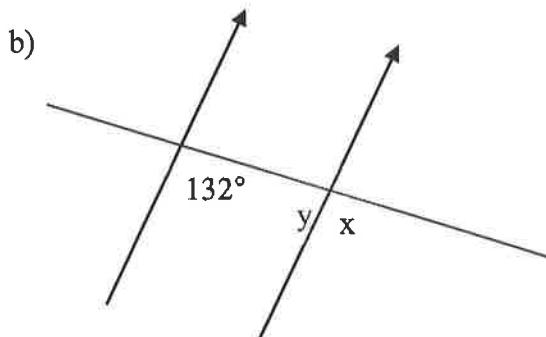
$x = 132°$ (corresponding)

$y = 180 - 132 = 48°$ (co-interior)

c)
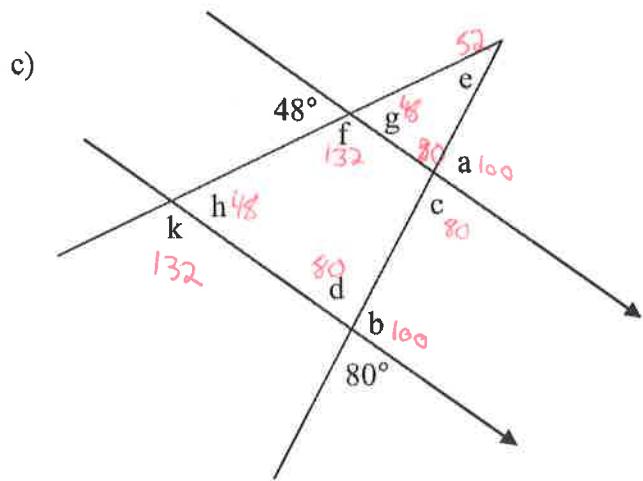
$d = 80°$ (opposite)

$b = 100°$ (supplementary)

$c = 80°$ (alternate int.)

$a = 100°$ (supplementary)

$f = 132°$ (supplementary)

$g = 48°$

$e = 180 - 80 - 48 = 52°$ (sum of angles in a triangle)

$h = 48°$ (alternate int.)

$k = 132°$ (supplementary)

d)
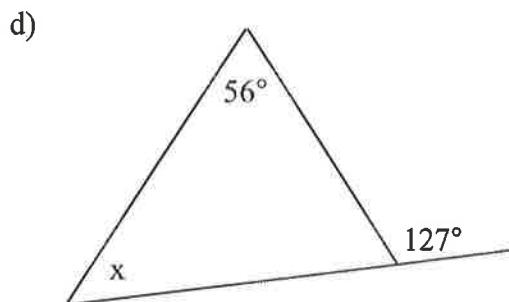

$56 + x = 127$ (exterior angle)

$x = 127 - 56$

$x = 71°$

e)

95° y 48° x 133° 133°
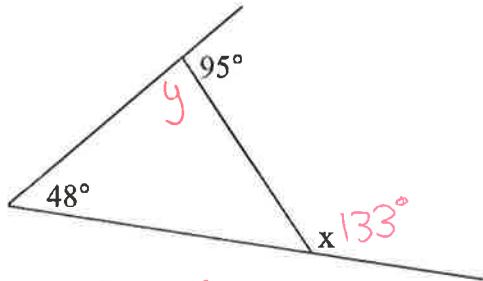
$y = 180 - 95 = 85°$ (supplementary)

$x = 48 + 85 = 133°$ (exterior angle)

f)

115° z 119 x 54 y 126°
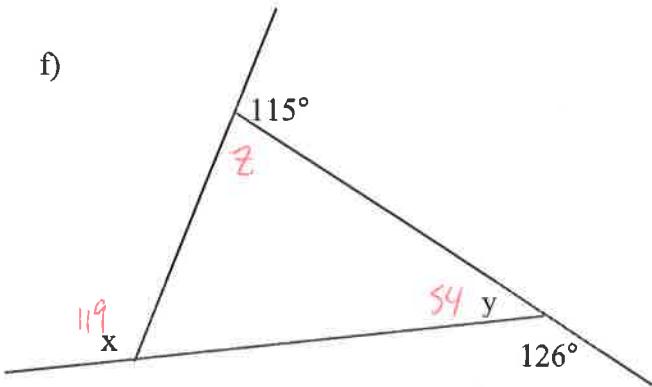
$y = 180 - 126 = 54°$ (supplementary)

$z = 180 - 115 = 65°$ (supplementary)

$x = 54 + 65 = 119$ (exterior angle)

g)

30° x 75 z y w 105°
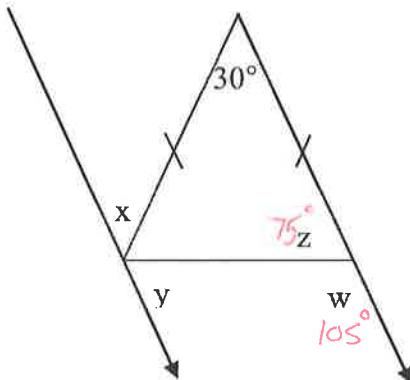
$2z + 30 = 180$ (sum of angles in a triangle)

$2z = 150$

$z = 75°$

$w = 180 - 75 = 105°$ (supplementary)

$y = 180 - 105 = 75°$ (co-interior)

$x = 30°$ (alternate interior)

h)

y x+2 44 62 74 x+20 2x-10
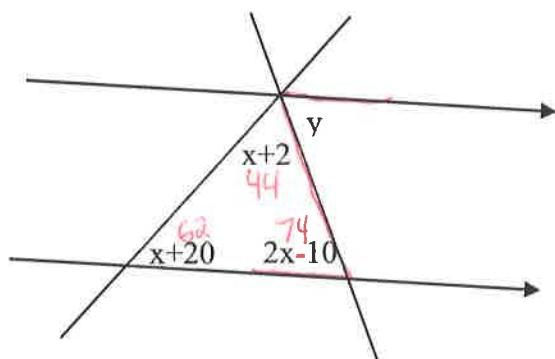
$x + 20 + 2x - 10 + x + 2 = 180$ (sum of angles)

$4x + 12 = 180$

$4x = 168$

$x = 42°$

$y = 74°$ (alternate interior)

ANSWERS

1) a) $x = 71°$

b) $x = 132°, y = 48°$

c) $a = 100°, b = 100°, c = 80°, d = 80°, e = 52°, f = 132°, g = 48°, h = 48°, k = 132°$

d) $x = 71°$

e) $x = 133°$

f) $x = 119°, y = 54°$

g) $w = 105°, x = 30°, y = 75°, z = 75°$

h) $x = 42, y = 74°$