1.4 Day 3 Homework
Pages 31-33 #11, 33-38, 42, 44-46

11. Multi-Step An angle's measure is 6 degrees more than 3 times the measure of its complement. Find the measure of the angle.

The angle is 69°

$x = 3(90-x)+6$
$x = 270-3x+6$
$x = 276-3x$
$4x = 276$
$x = 69$

MULTI-STEP TEST PREP

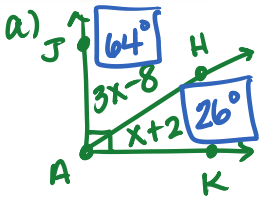
33. H is in the interior of $\angle JAK$. $m\angle JAH = (3x-8)°$, and $m\angle KAH = (x+2)°$. Draw a picture of each relationship. Then find the measure of each angle.

a. $\angle JAH$ and $\angle KAH$ are complementary angles.

b. $\angle JAH$ and $\angle KAH$ form a linear pair.

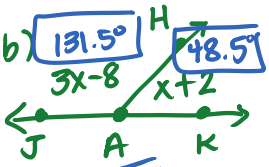
c. $\angle JAH$ and $\angle KAH$ are congruent angles.

a)



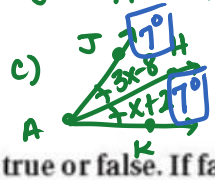
$3x-8+x+2 = 90$
$4x-6 = 90$
$4x = 96$
$x = 24$

b)



$3x-8+x+2 = 180$
$4x-6 = 180$
$4x = 186$
$x = 46.5$

c)



$3x-8 = x+2$
$2x = 10$
$x = 5$

Determine whether each statement is true or false. If false, explain why.

34. If an angle is acute, then its complement must be greater than its supplement. False: ex: acute ∠ = 20°, comp ∠ = 70°, supp = 160°. comp. is not greater than supp.

35. A pair of vertical angles may also form a linear pair. False, V.A. must be across from each other – not next to.

36. If two angles are supplementary and congruent, the measure of each angle is 90°. True

37. If a ray divides an angle into two complementary angles, then the original angle is a right angle. True

38. Write About It Describe a situation in which two angles are both congruent and complementary. Explain. You tell me ☺

42. The measures of two supplementary angles are in the ratio 7:5. Which value is the measure of the smaller angle? (*Hint:* Let $7x$ and $5x$ represent the angle measures.)

Ⓕ 37.5 Ⓖ 52.5 Ⓗ 75 Ⓙ 105

$7x+5x = 180$
$12x = 180$
$x = 15$

smaller ∠ $= 5(15)$
$= 75°$

44. The supplement of an angle is 4 more than twice its complement. Find the measure of the angle.

45. An angle's measure is twice the measure of its complement. The larger angle is how many degrees greater than the smaller angle?

challenge!! ★

46. The supplement of an angle is 36° less than twice the supplement of the complement of the angle. Find the measure of the supplement.

44. $180-x = 2(90-x)+4$

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

$180-x = 184-2x$

$x = 4$

angle = 4°

45. $x = 2(90-x)$

$x = 180-2x$

$3x = 180$

$x = 60$

angle = 60°

comp = $90-60 = 30°$

Larger ∠ = $60-30 = 30°$

Larger ∠ is 30° greater than smaller ∠

46. $180-x = 2(180-(90-x))-36$

$180-x = 2(180-90+x)-36$

$180-x = 2(90+x)-36$

$180-x = 180+2x-36$

$180-x = 144+2x$

$-3x = -36$

$x = 12$

angle = 12° supp = $180-12$

supp = 168°