8/27 Algebra 1 - Notes

Algebra 1 - Downing

1.2C Application to Equations NOTES

1. Two consecutive integers have a sum of 91. What are the numbers?

$x \rightarrow 1^{st}$ Number

$x+1 \rightarrow 2^{nd}$ Number

$x + (x+1) = 91$

$x + x + 1 = 91$

$2x + 1 = 91$

$-1 \quad -1$

$\frac{2x}{2} = \frac{90}{2}$

$x = 45 \quad x+1 = 46$

45 + 46

2. The sum of two consecutive integers is 27. What are the two numbers?

$x + x + 1 = 27$

$2x + 1 = 27$

$-1 \quad -1$

$\frac{2x}{2} = \frac{26}{2}$

$x = 13 \quad x+1 = 14$

13 + 14

3. What three consecutive integers have a sum of 21?

$x \rightarrow 1^{st}$ number

$x+1 \rightarrow 2^{nd}$ number

$x+2 \rightarrow 3^{rd}$ number

$x + x+1 + x+2 = 21$

$3x + 3 = 21$

$-3 \quad -3$

$\frac{3x}{3} = \frac{18}{3}$

$x = 6 \quad x+1 = 7 \quad x+2 = 8$

6, 7, 8

4. What two consecutive integers have a sum of 113?

$x + x+1 = 113$

$2x + 1 = 113$

$-1 \quad -1$

$\frac{2x}{2} = \frac{112}{2}$

$x = 56 \quad x+1 = 57$

56 + 57

5. Three consecutive integers have a sum of 270. What is the middle number?

$x + x+1 + x+2 = 270$

$3x + 3 = 270$

$-3 \quad -3$

$\frac{3x}{3} = \frac{267}{3}$

$x =$

6. The sum of the angles of a triangle is 180 degrees. One angle is 20 more than 10 times a number. Another angle is 12 times the same number. The last angle is 5 more than 9 times the same number. Find the measure of each angle.

$20 + 10x + 12x + 5 + 9x = 180$

$31x + 25 = 180$

$-25 \quad -25$

$\frac{31x}{31} = \frac{155}{31}$

$x = 5$

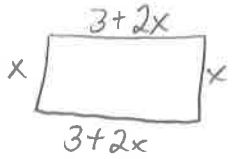
plug in for each angle

$20 + 10(5) = 70°$

$12(5) = 60°$

$5 + 9(5) = 50°$

7. The length of a rectangle is 3 more than twice the width. If the perimeter of the rectangle is 48, what is the width? x = width $\quad 3+2x$ = length



$x + x + \underbrace{3+2x}_{\text{length}} + \underbrace{3+2x}_{\text{length}} = 48$ or $2(x) + 2(3+2x) = 48$

$2x + 6 + 4x = 48$

$6x + 6 = 48$

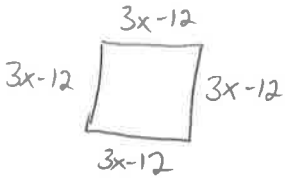
$6x + 6 = 48$

$-6 \quad -6$

$\frac{6x}{6} = \frac{42}{6}$

$x = 7$ units → width

8. A square has side lengths 12 less than three times a number. If the perimeter of the square is 144 cm, find the length of one side of the square.



$3x-12 + 3x-12 + 3x-12 + 3x-12$

$4(3x-12) = 144$

$12x - 48 = 144$

or

$12x - 48 = 144$

$+48 \quad +48$

$\frac{12x}{12} = \frac{192}{12}$

$x = 16$

$3(16) - 12 =$

$48 - 12$

36 cm

★ HW - Appl. to Equations WS

★ Go over PC