Notes: Linear Growth using Stacking Towers
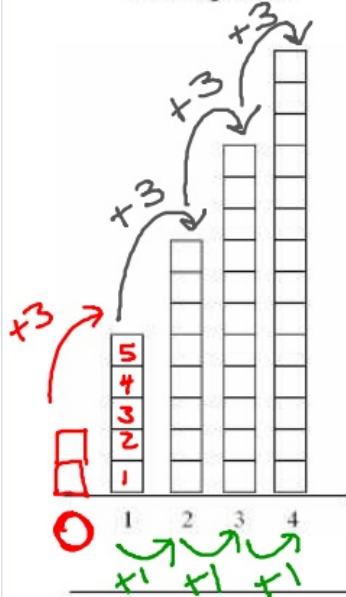
slope – intercept form of a line : $y = mx + b$
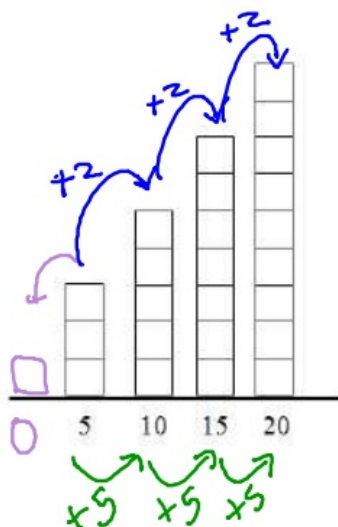
in other words … $y = (change)x + beginning$

Example 1:

How is the pattern changing (m) ? $\dfrac{3}{1}$ $\dfrac{vertical\ change}{horizontal\ change}$

How many piece(s) were there in the beginning - step 0 (b) ? 2

Write an equation $\boxed{y = \mathbf{m}x + \mathbf{b}}$ to represent the pattern $y = \dfrac{3}{1}x + 2$
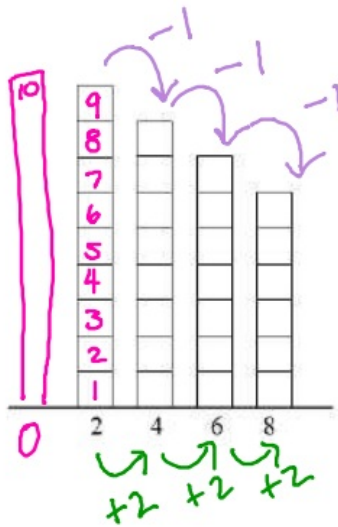
$$y = 3x + 2$$

Example 2:

How is the pattern changing (m) ? $\dfrac{2}{5}$ $\dfrac{vertical\ change}{horizontal\ change}$

How many piece(s) were there in the beginning - step 0 (b) ? 1

Write an equation $y = \mathbf{m}x + \mathbf{b}$ to represent the pattern $y = \dfrac{2}{5}x + 1$

Example 3:

How is the pattern changing (*m*) ? $\dfrac{-1}{2}$ $\quad \dfrac{vertical\ change}{horizontal\ change}$

How many piece(s) were there in the beginning - step 0 (*b*) ? 10

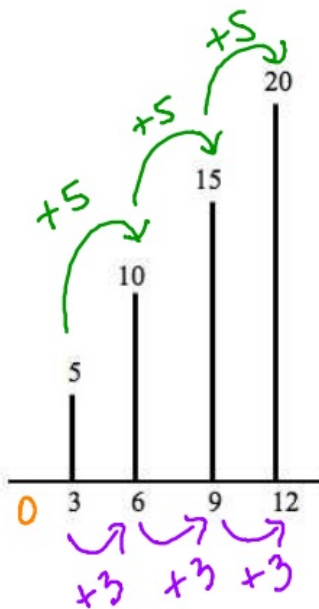Write an equation $y = mx + b$ to represent the pattern $y = -\tfrac{1}{2}x + 10$

Example 4:

How is the pattern changing (*m*) ? $\dfrac{5}{3}$ $\quad \dfrac{vertical\ change}{horizontal\ change}$

How many piece(s) were there in the beginning - step 0 (*b*) ? 0

Write an equation $y = mx + b$ to represent the pattern $y = \tfrac{5}{3}x + 0$

$$y = \tfrac{5}{3}x$$

summary:

linear equation: equation of a line
constant rate of change

slope: $\dfrac{rise}{run}$ or $\dfrac{vertical\ change}{horizontal\ change}$ = steepness

y-intercept: line crosses the y-axis.

Assignment: Linear Growth using Stacking Tower

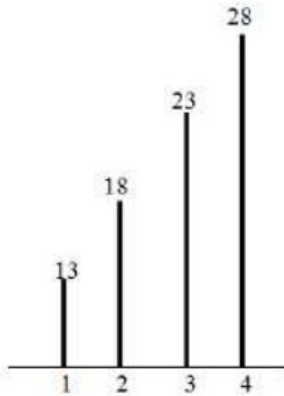Problem 1:
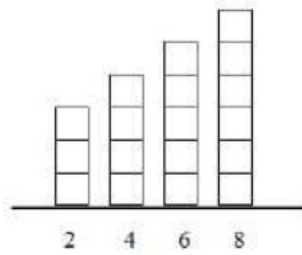
vertical change
―――――――
horizontal change

How is the pattern changing (**m**) ? _____

How many piece(s) were there in the beginning - step 0 (**b**) ? _____

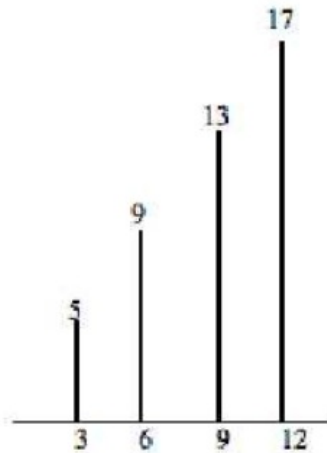Write an equation $y = \mathbf{m}x + \mathbf{b}$ to represent the pattern _____

2   4   6   8

Write Equations for each linear growth pattern.

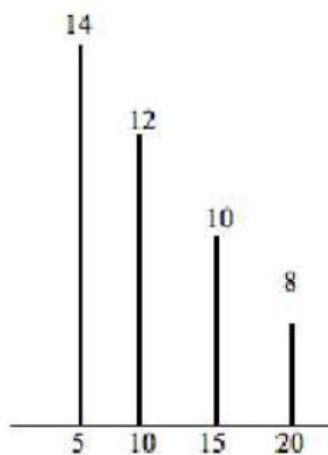Problem 2:   Problem 3:   Problem 4:
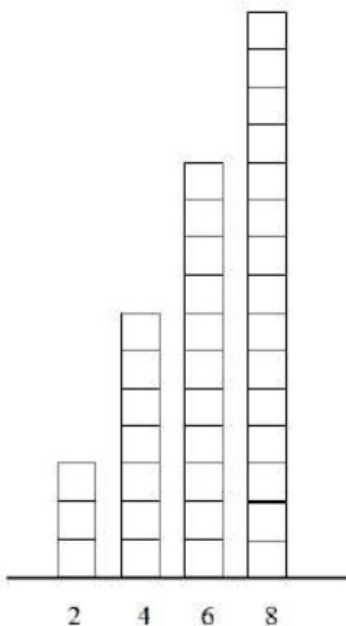

Equation: _____   Equation: _____   Equation: _____

Problem 5:

Problem 6:

Problem 7:

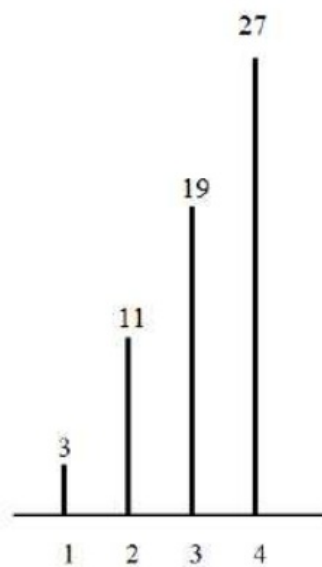
Equation: _____

Equation: _____
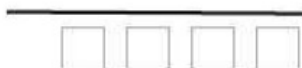
Equation: _____

Create **3** drawings of linear growth patterns.

One must have a positive slope and one must have a negative slope.

Problem 8:

Problem 9:

Problem 10:

Equation: _____

Equation: _____

Equation: _____