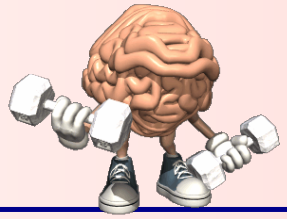
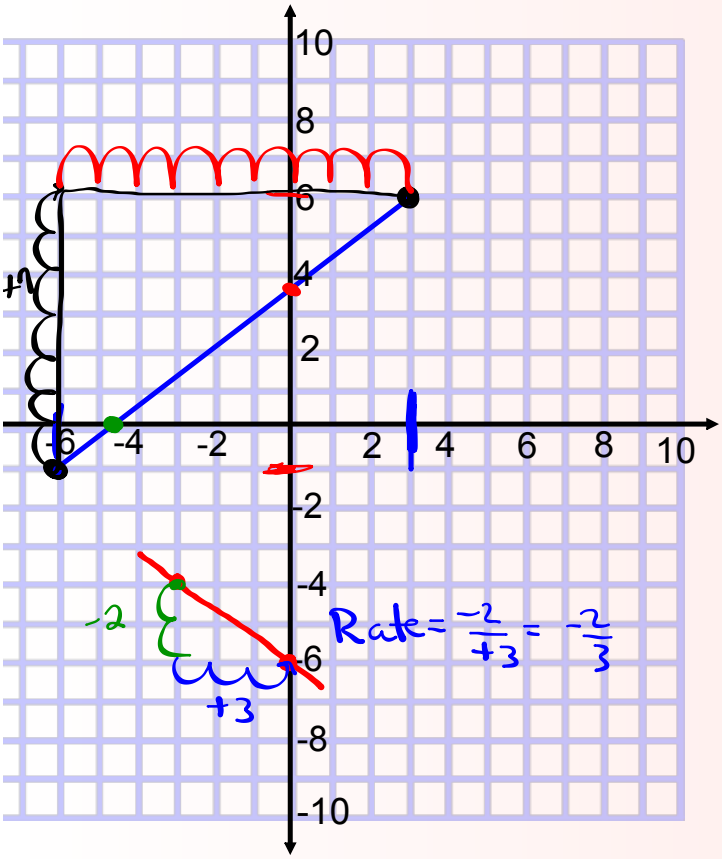
Test FRIDAY

Warm Up





State the :

Domain: $\{x \mid -6 \leq x \leq 3, x \in R\}$

Range: $\{y \mid -1 \leq y \leq 6, y \in R\}$

Function/Nonfunction:

x Intercept= -4.8

(-4.8, 0)

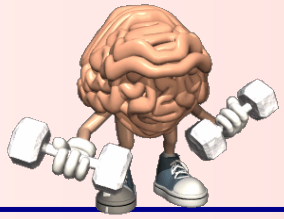
y Intercept= 3.8

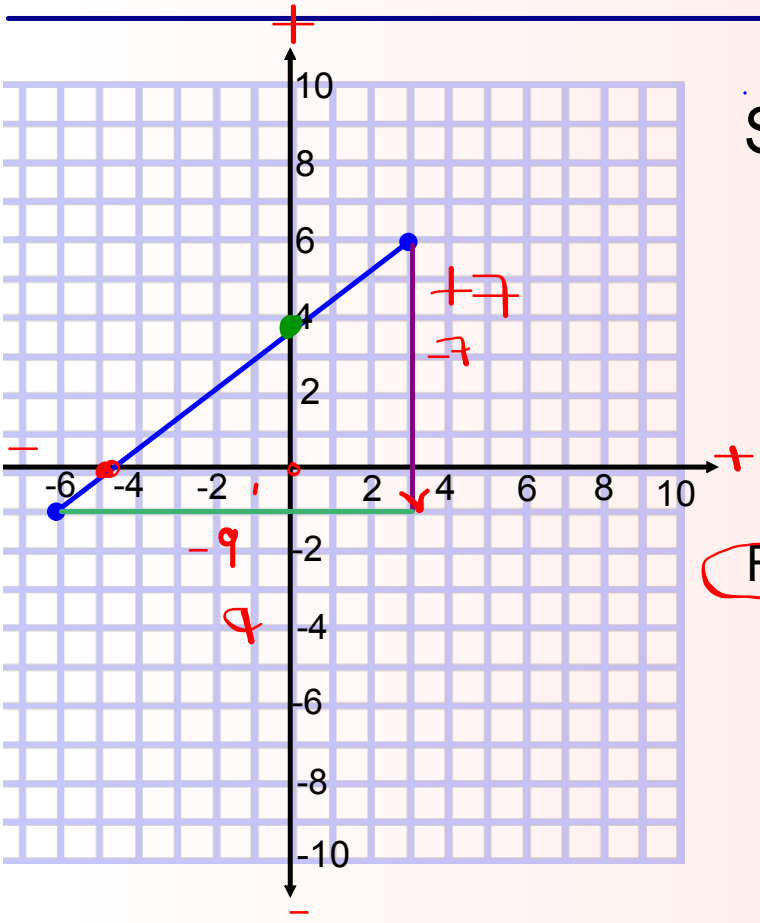
(0, 3.8)

Rate of change= $\frac{\text{rise}}{\text{run}} = \frac{+7}{+9}$

$= \frac{7}{9}$

Warm Up





State the :

Domain:

$D = \{x \mid -6 \le x \le 3, x \in \mathbb{R}\}$

Range:

$R = \{y \mid -1 \le y \le 6, y \in \mathbb{R}\}$

Function/Nonfunction:

x Intercept= -5

$(-5, 0)$

y Intercept= $+4$

$(0, 4)$

Rate of change= $\frac{\text{rise}}{\text{run}} = \frac{\text{dep change}}{\text{Ind change}}$

$= \frac{-7}{-9} = \frac{7}{9}$

Section 5.7

Linear Relationships & Graph

Homework:

Page 319

Question 4 ,6, 8

Homework

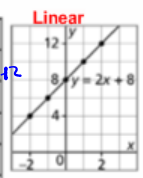
Page: 308-310
Questions: 6a,b(i,ii), 7a,b, 14

Page 319
Question 4b(i, ii, ii) ,8

6. a) Tables of values may vary. For example:

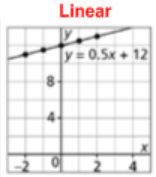
i) Linear

x	y
−2	4
−1	6
0	8
1	10
2	12



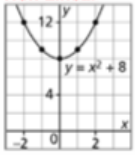
ii) Linear

x	y
−2	11
−1	11.5
0	12
1	12.5
2	13



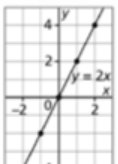
iii) Non Linear

x	y
−2	12
−1	9
0	8
1	9
2	12

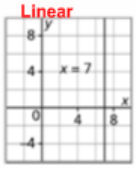


iv) Linear

x	y
−2	−4
−1	−2
0	0
1	2
2	4

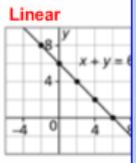


v) Linear



vi) Linear

x	y
−2	8
0	6
2	4
4	2
6	0



b) The relations in part a, i, ii, iv, v, and vi lines, so they are linear relations.

7. For each relation below:
i) Identify the dependent and independent variables.
ii) Use the table of values to determine whether the relation is linear.
iii) If the relation is linear, determine its rate of change.

a) The distance required for a car to come to a complete stop after its brakes are applied is the *braking distance*. The braking distance, d metres, is related to the speed of the car, s kilometres per hour, when the brakes are first applied.

Independent Dependent

s (km/h)	d (m)		
50	13	7	
60	20	7	Non Linear
70	27	8	fails
80	35		

(10, 10, 10)

b) The altitude of a plane, a metres, is related to the time, t minutes, that has elapsed since it started its descent.

Independent Dependent

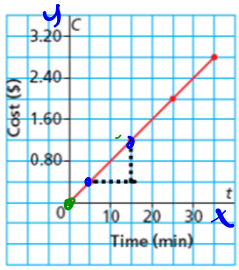
t (min)	a (m)	
0	12 000	
2	11 600	-400
4	11 200	-400
6	10 800	-400
8	10 400	-400

(2, 2, 2, 2)

5.6 Properties of Linear Relations

14. This graph represents Jerome's long distance phone call to his pen pal in Nunavut. Jerome is charged a constant rate.
a) Identify the dependent and independent variables.

The Cost of Jerome's Phone Call



Independent Variable: Time (min)

Dependent Variable: Cost ($)

b) Determine the rate of change, then describe what it represents.

Rate of change = $\frac{\text{difference of cost}}{\text{difference of time}} = \frac{\$\ 0.80}{10\ \text{min}} = \$0.08/\ \text{min}$

4. Each graph below shows distance, d kilometres, as a function of time, t hours. For each graph:

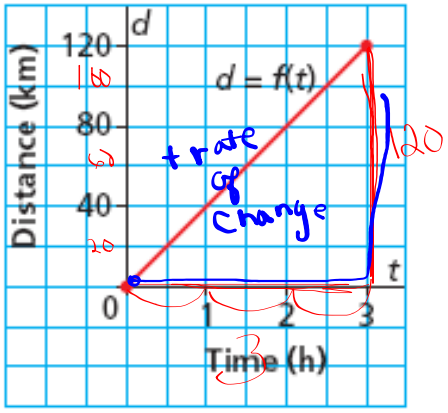
i) Determine the vertical and horizontal intercepts. Write the coordinates of the points where the graph intersects the axes.

ii) Determine the rate of change.

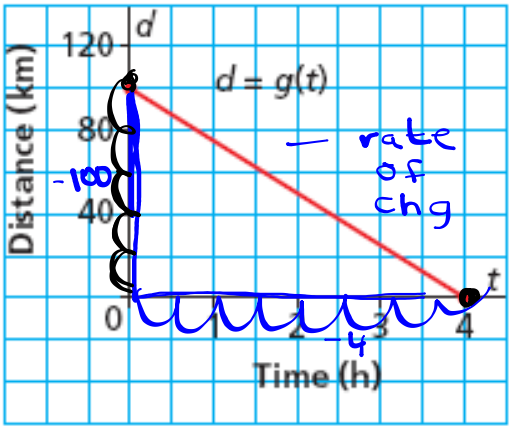
iii) Determine the domain and range.

next page

a)



b)



y int → 0

(0, 0)

x int → 0

(0, 0)

rate of change = $\frac{120\text{ km}}{3\text{ h}} = \frac{40\text{ km}}{1\text{ hr}}$

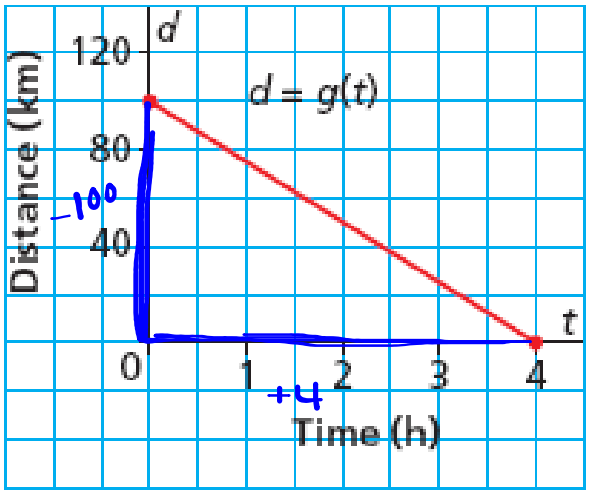
Domain

$0 \leq x \leq 3$

Range

$0 \leq y \leq 120$

b)



x int = 4
(4, 0)

y int = 100
(0, 100)

Domain
$0 \leq x \leq 4$

Rate of change
$= \frac{-100 \text{ km}}{4 \text{ h}}$

$= \frac{-25 \text{ km}}{1 \text{ h}}$

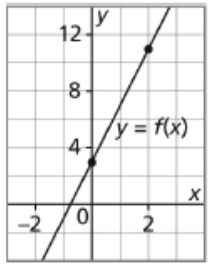
Range
$0 \leq y \leq 100$

6. Sketch a graph of each linear function.

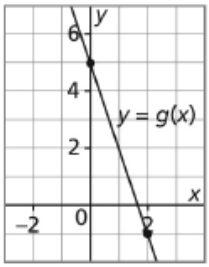
a) $f(x) = 4x + 3$ b) $g(x) = -3x + 5$

c) $h(x) = 9x - 2$ d) $k(x) = -5x - 2$

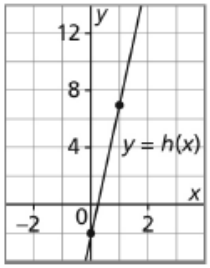
6. a)



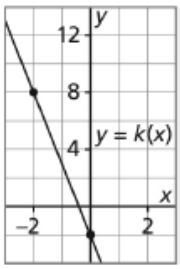
b)



c)



d)

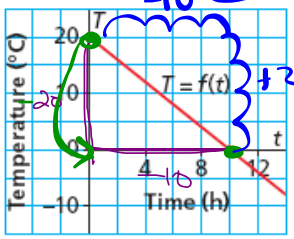


8. The graphs below show the temperature, T degrees Celsius, as a function of time, t hours, at different locations.

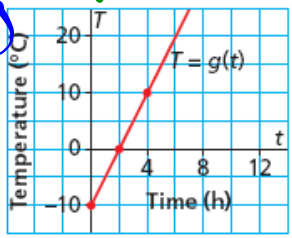
a) Which graph has a rate of change of 5°C/h and a vertical intercept of −10°C?

b) Which graph has a rate of change of −10°C/h and a vertical intercept of 20°C?

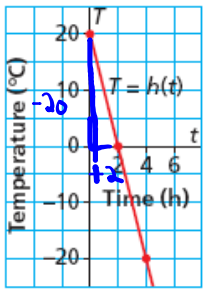
i)



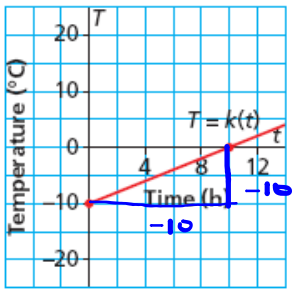
ii)



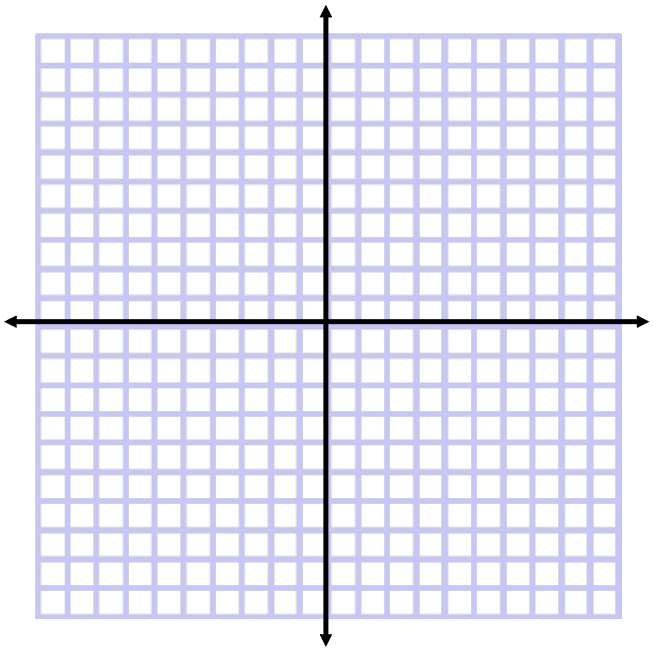
iii)



iv)



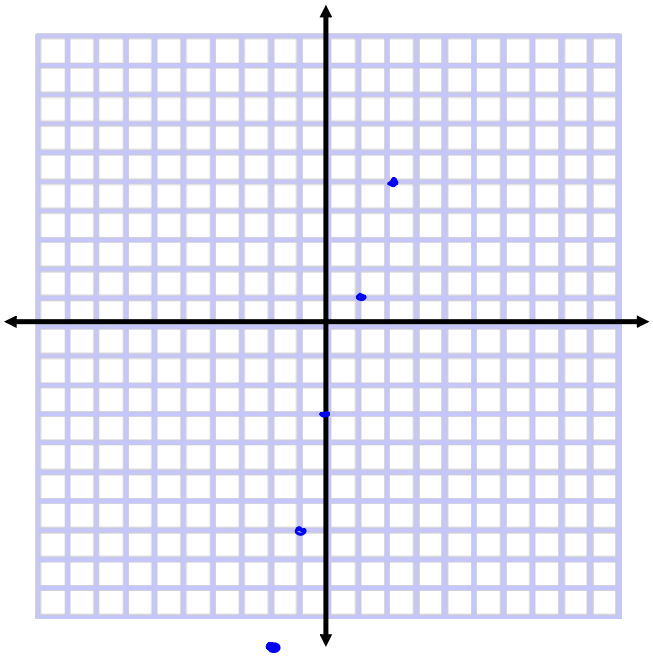
2. Sketch a graph of the linear function $f(x) = 4x - 3$.



2. Sketch a graph of the linear function $f(x) = 4x - 3$.

Did this already

x	$f(x)$
-2	-11
-1	-7
0	-3
1	1
2	5



To find x & y Intercepts given an equation

ON TEST

1) To find x-intercept LET x=0

$y = 3x + 7$

$y = 3(0) + 7$ 1

$y = 0 + 7$

$\boxed{y = 7}$ 1

2) To Find ~~x~~ y-intercept let y =0

$y = 3x + 7$

$0 = 3x + 7$

$0 - 7 = 3x + 7 - 7$ /3

$-7 = 3x$

$\frac{-7}{3} = \frac{3x}{3}$ ✓

$-\frac{7}{3} = x$

$-2.\overline{3} = x$

$$y = mx + b$$

\# \#

m = Rate of Change (Slope)

b = initial cost (vertical intercept or y-int.)

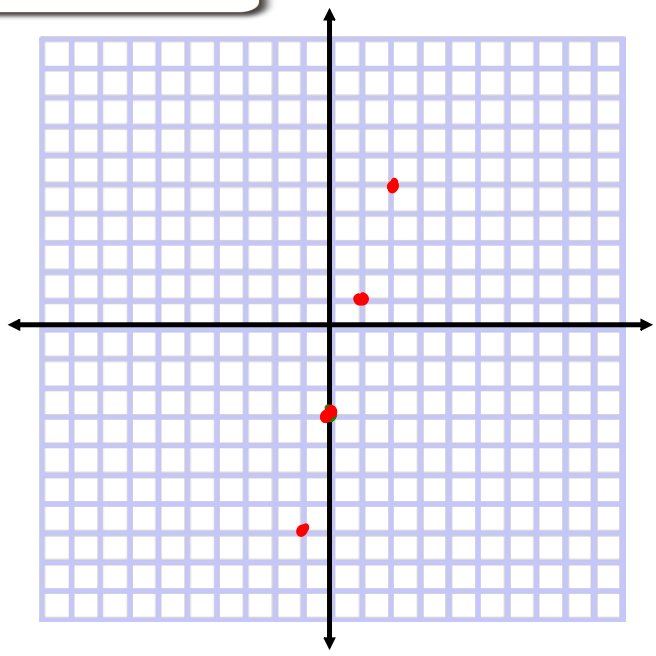
2. Sketch a graph of the linear function $f(x) = 4x - 3$.

$f(x) = 4x - 3$

$y = \frac{4}{1}x - 3$

$m = \frac{4}{1}$ or $\frac{-4}{-1}$

y int = -3



$C = 11g + 7$

function notation

$C(g) = 11g + 7$

Find the Slope and Y-intercept

1) $y = 5x + 10$

y = m x + b

$m = \frac{5}{1}$

$y\text{int} = 10$

$(0, 10)$

write as ordered pair.
(Remember for y-intercept the x=0)

2) $P = -2t - 3$

y = m x + b

$m = \frac{-2}{1}$ $b = -3$ $y\text{int} \rightarrow -3$

$(0, -3)$

3) $R = \frac{-5}{2}g + 7$

y = m x + b

$m = \frac{-5}{2}$ $y\text{int} \rightarrow 7$

$(0, 7)$

4) $y = 8 + \frac{1}{2}x$

b + m x

$m = \frac{1}{2}$

$b = 8$

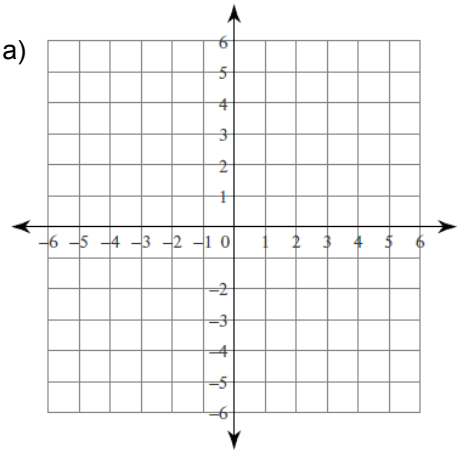
$y = mx + b$

m: rate of change (slope)

b: y intercept

1) $y = 2x - 3$

a)

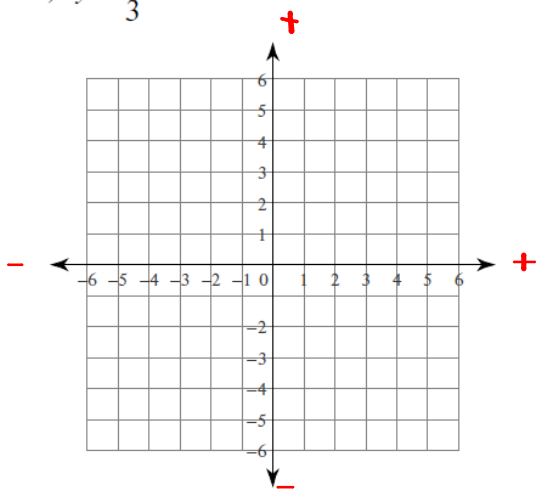


$m =$

$y\text{int} \rightarrow (\quad)$

2) $y = \frac{4}{3}x + 1$

b)



$m =$ or

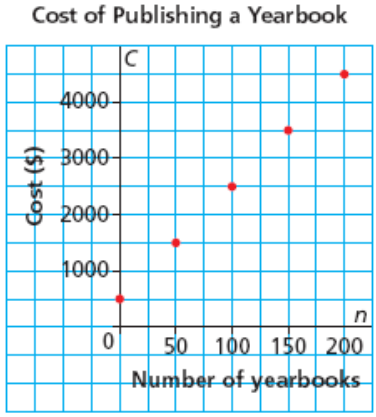
$y\text{int} \rightarrow (\quad)$

Example 4 Solving a Problem Involving a Linear Function

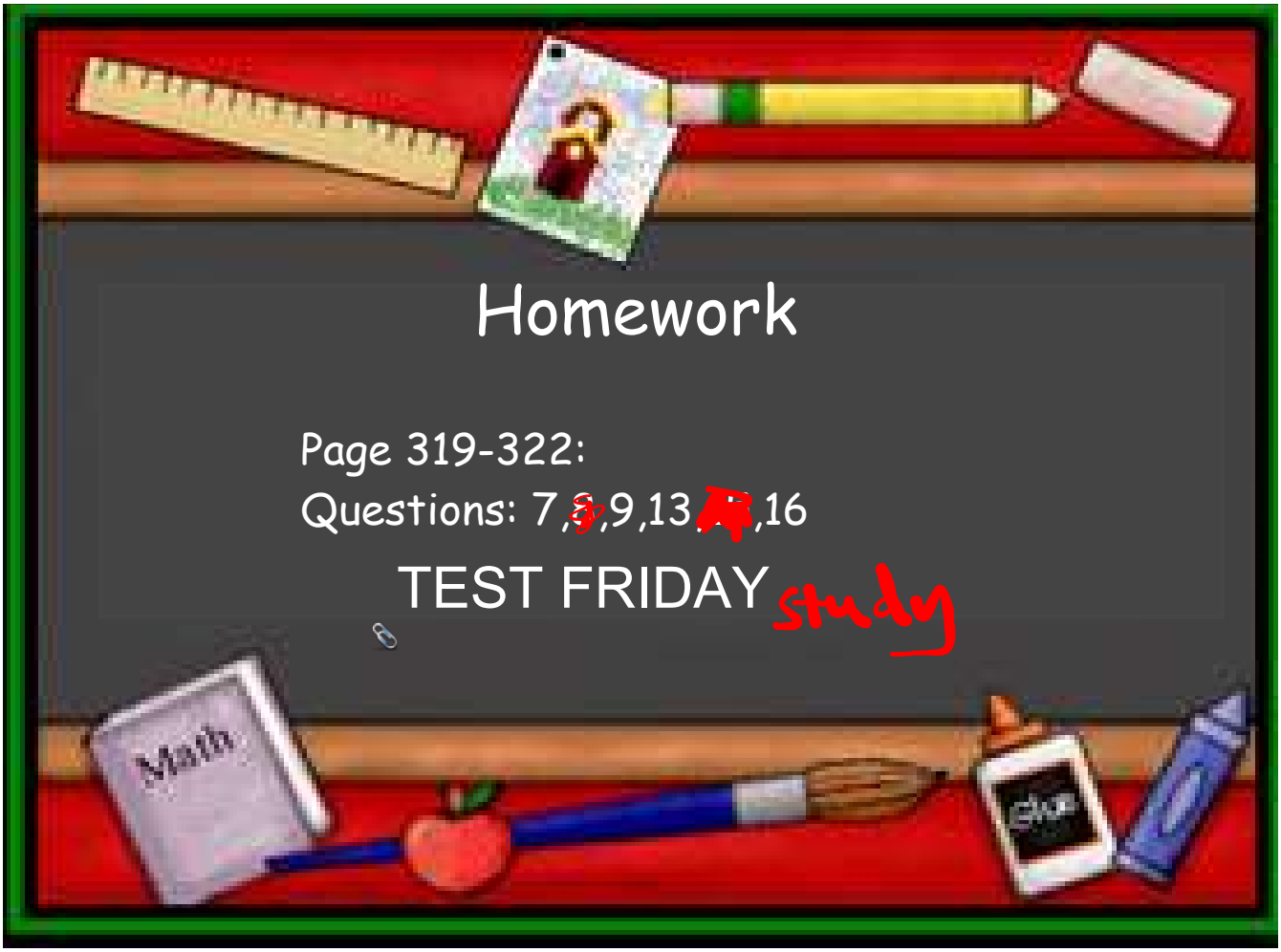
This graph shows the cost of publishing a school yearbook for Collège Louis-Riel in Winnipeg.

The budget for publishing costs is $4200. What is the maximum number of books that can be printed?

SOLUTION



CHECK YOUR UNDERSTANDING


Homework
Page 319-322:
Questions: 7,9,13,16
TEST FRIDAY
study
Math

Attachments

Chapter 5 Rela & Func Day 16.5 TEST OUTLINE.notebook