Page 403 = 9 – 11, 13 – 20, 31 – 35

Problem 9

$5x - 3 = x + 5$

$-x \quad -x$

$4x - 3 = 5$

$+3 \quad +3$

$\frac{4x}{4} = \frac{8}{4}$

$x = 2$

Problem 10

$3(x + 4) = 5x - 12$

$3x + 12 = 5x - 12$

$-3x \quad -3x$

$12 = 2x - 12$

$+12 \quad +12$

$\frac{24}{2} = \frac{2x}{2}$

$12 = x$

Problem 11

$2(x - 2) + 3(x + 5) = 2x - 2$

$2x - 4 + 3x + 15 = 2x - 2$

$5x + 11 = 2x - 2$

$-2x \quad -2x$

$3x + 11 = -2$

$-11 \quad -11$

$\frac{3x}{3} = \frac{-13}{3}$

$x = -13/3$ or $-4 1/3$ or -4.333…

Problem 13

$7x + 5 = 5(x + 3) + 2x$

$7x + 5 = 5x + 15 + 2x$

$7x + 5 = 7x + 15$

Same x's, different numbers

NO SOLUTION

Problem 14

$7x + 13 = 2(2x - 5) + 3x + 23$

$7x + 13 = 4x - 10 + 3x + 23$

$7x + 13 = 7x + 13$

Same x's, same numbers

ALL REAL NUMBERS

Problem 15

```
3 * 25 / 15
```

5

Problem 16

```
4 * 91 / -7
```

-65

Problem 17
5(x + 2) = 12
5x + 10 = 12
5x = 2
x = $^2/_5$ or .4

Problem 18
5(x + 3) = 3(x + 7)
5x + 15 = 3x + 21
2x + 15 = 21
2x = 6
X = 3

Problem 19
$$\frac{3\ teachers}{50\ students} = \frac{x\ teachers}{5400\ students}$$
3 * 5400 / 50
324 teachers

Problem 20
$$\frac{112\ tagged}{x\ total} = \frac{32\ tagged}{82\ total}$$
112 * 82 / 32
Appx. 287 trout total

Problem 31
2x – 5 < 3
2x < 8
x < 4

Problem 32
This is the same as ½ x > -4
Divide by ½, or multiply by 2.
x > -8

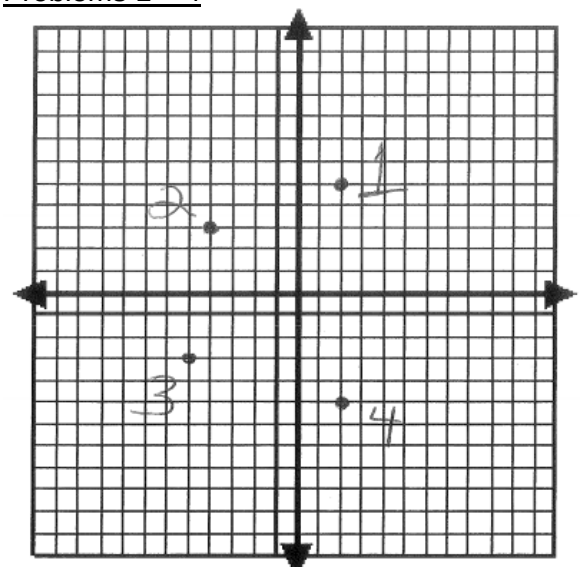
Problem 33
3 – 5x ≤ 18
-3 -3
-5x ≤ 15
-5 -5
Remember to flip sign when you divide by a negative.
x ≥ -3

Problem 34
4x + 6 < 5x
-4x -4x
6 < x
This is the same as x > 6 … either way is correct.

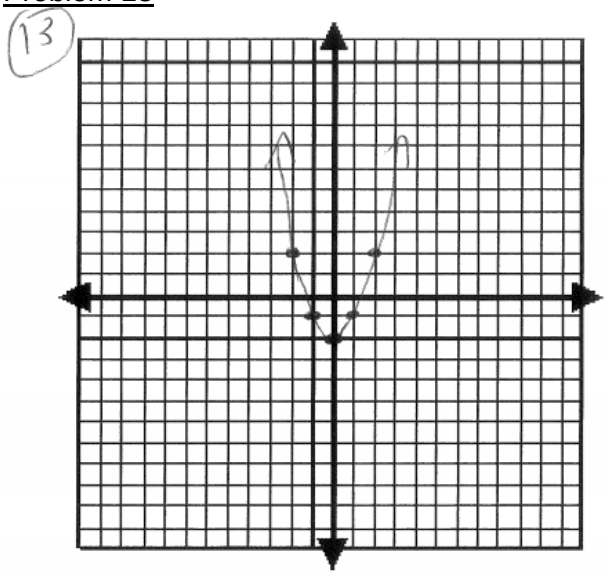
Problem 35
6x – 10 ≥ 2(x + 3)
6x – 10 ≥ 2x + 6
-2x -2x
4x – 10 ≥ 6
4x ≥ 16
x ≥ 4

Page 480 = 1 – 4, 13 – 15, 17 – 27, 31 – 33, 51 – 53

Problems 1 – 4



Problem 13

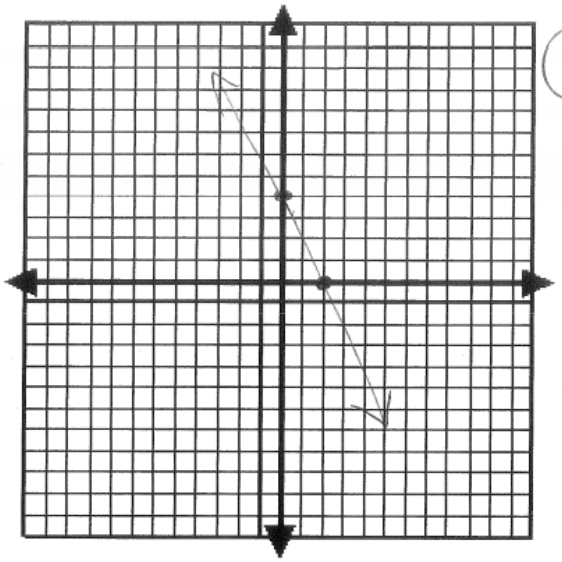


x	$f(x) = x^2 - 2$
-2	2
-1	-1
0	-2
1	-1
2	2

Problem 14
Yes (vertical line would touch just once)

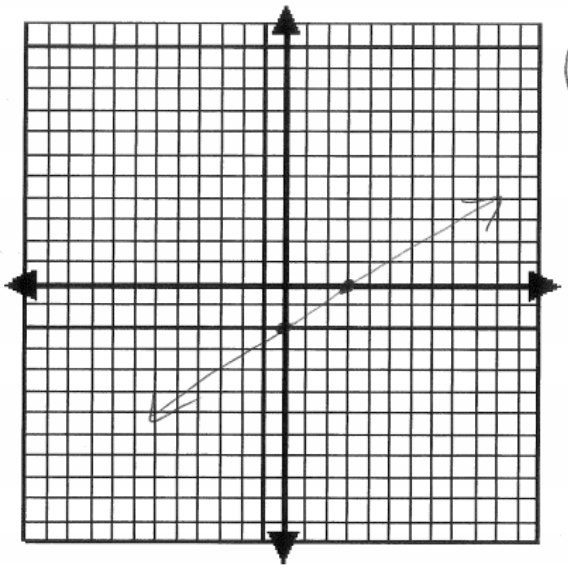
Problem 15
No (vertical line would touch multiple times)

Problem 17



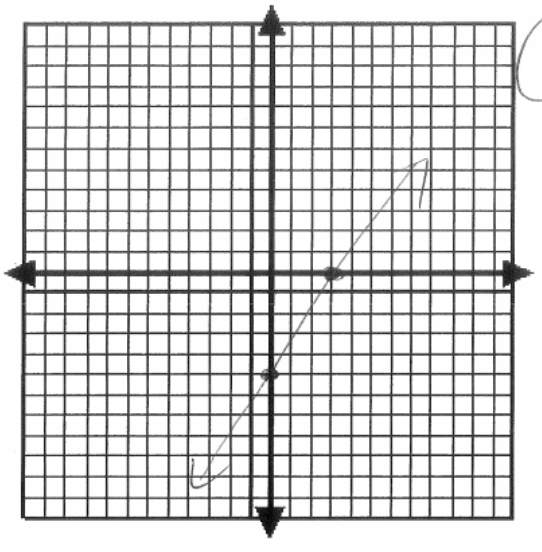
17
(0, 4)
(2, 0)

Problem 18



18
(0, -2)
(3, 0)

Problem 19



19
(0, -5)
(3, 0)

Problem 20

$\frac{1-2}{5-3} = \frac{1}{-2}$ … falls

Problem 21

$\frac{-4-2}{-3--1} = \frac{-6}{-2} = 3$ … rises

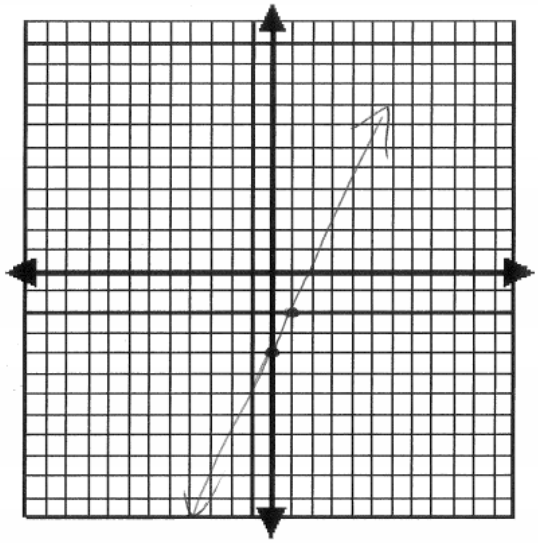
Problem 22

$\frac{4-4}{6--3} = \frac{0}{9} = 0$ … horizontal

Problem 23

$\frac{-3-3}{5-5} = \frac{-6}{0}$ … undefined … vertical

Problem 24

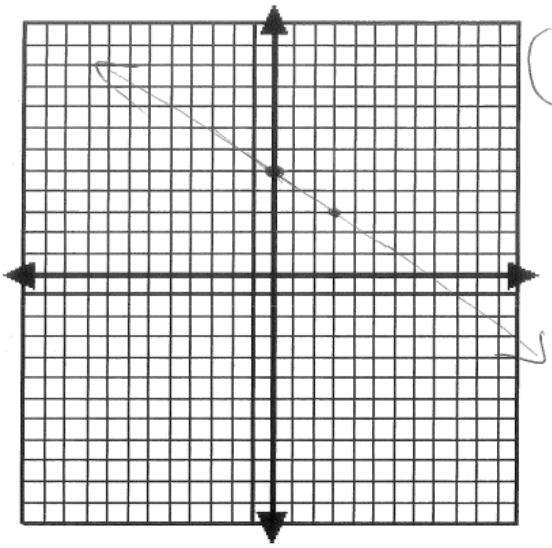


24

y-int = −4

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

Problem 25

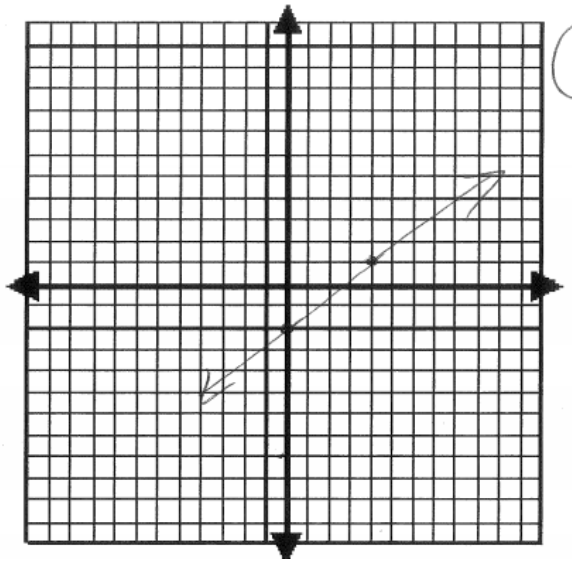


25

y-int = 5

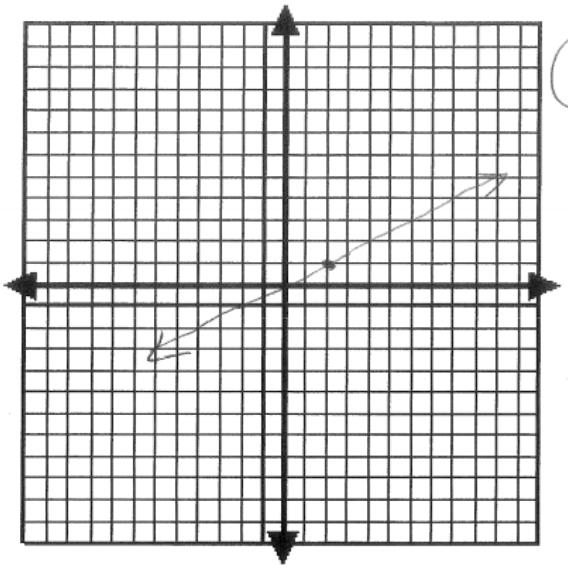
slope = $\frac{-2}{3}$

Problem 26



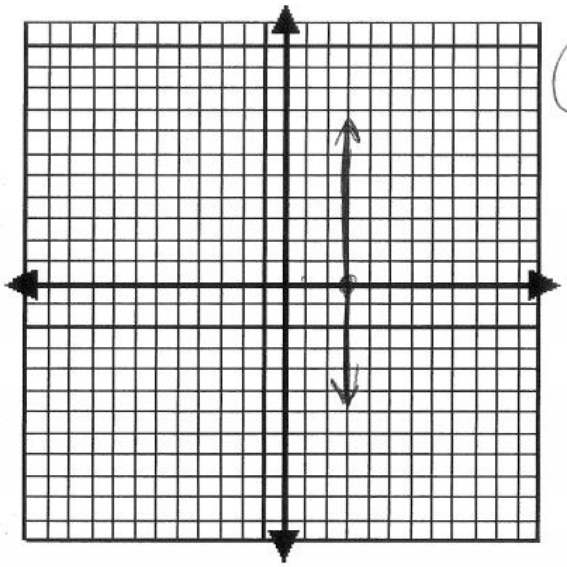
(26)
y-int = -2
Slope = $\frac{3}{4}$

Problem 27



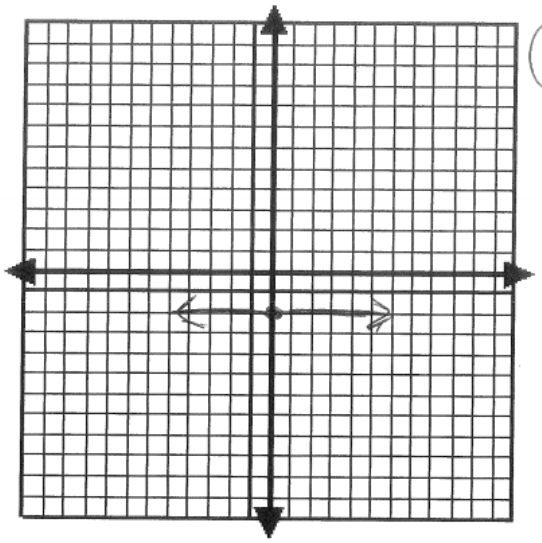
(27) y-int = 0
Slope = $\frac{1}{2}$

Problem 31



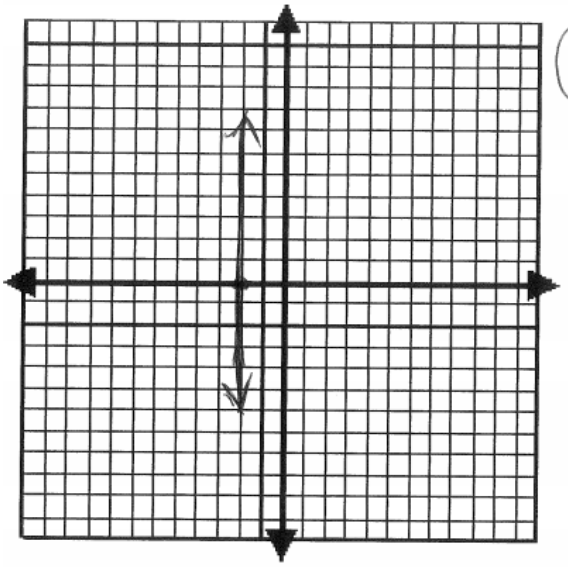
(31) vertical

Problem 32



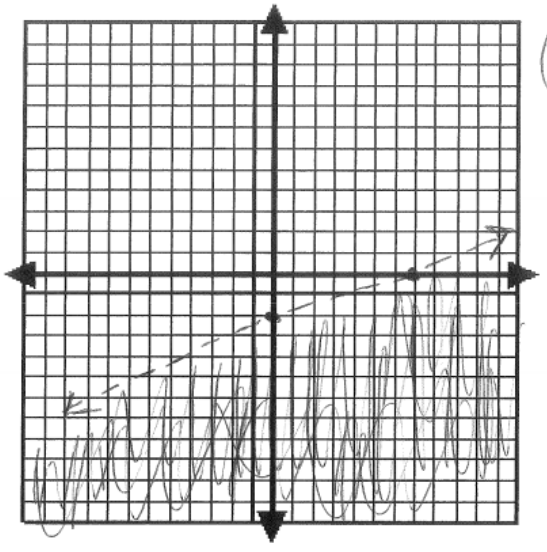
32
Horizontal

Problem 33



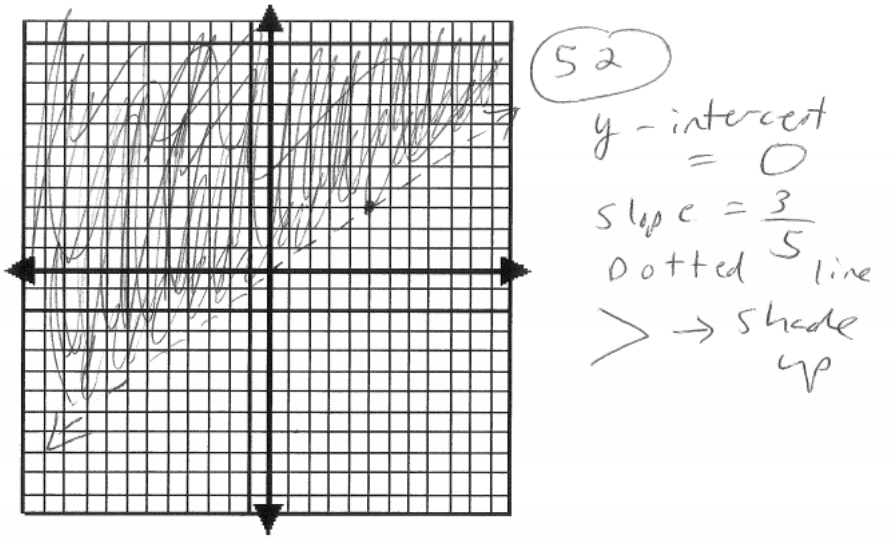
33
$x+2=0$
$x=-2$
Vertical

Problem 51

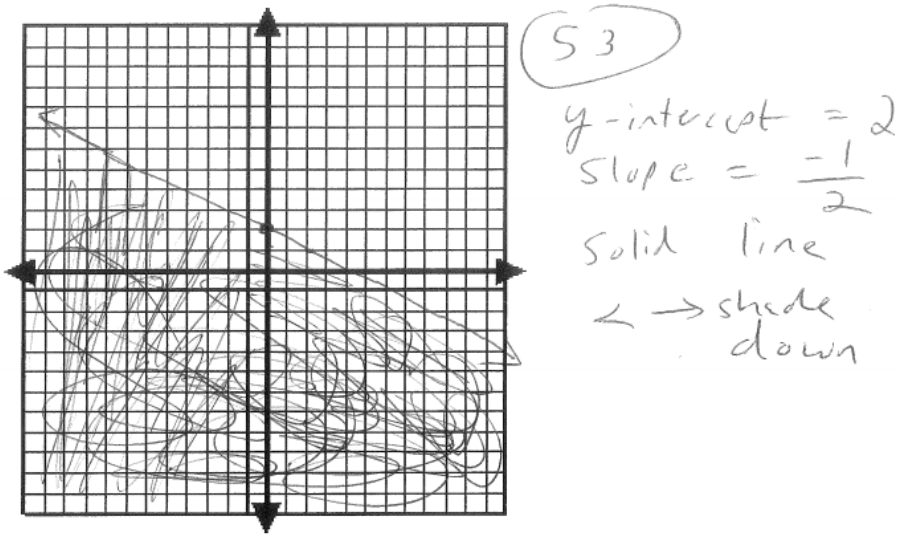


51
$(0,-2)$
$(7,0)$
dotted line
Plug in $(0,0)$
$0 \not> 14$
shade other way

Problem 52



Problem 53



Page 483 = 2 – 7

Problem 2

$f(-2) = 3(-2)^2 - 7(-2) - 5$
$= 3(4) - 7(-2) - 5$
$= 12 + 14 - 5$
$= 26 - 5 =$ **21**

Problem 3

No (vertical line would touch twice)

Problem 4

Yes (vertical line just touches once)

Problem 5

Part a

Yes … vertical line just touches once OR there is just one height for every possible time.

Part b

f(15) = 0 … at 15 seconds the eagle is on the ground

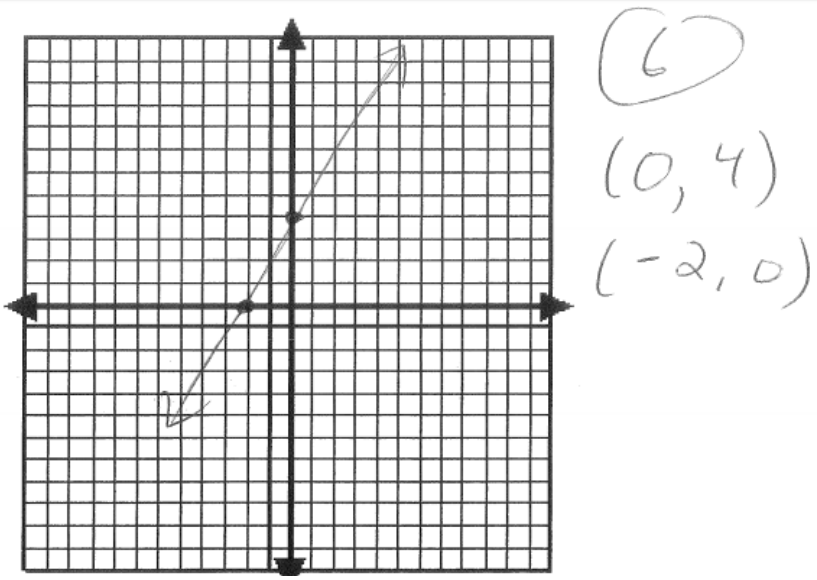
Part c

The maximum height is about 45 meters

Part d

The eagle was descending (going down) from about 4 seconds to about 12 seconds

Problem 6



Problem 7

$$\frac{-2-4}{-5--3} = \frac{-6}{-2} = 3$$