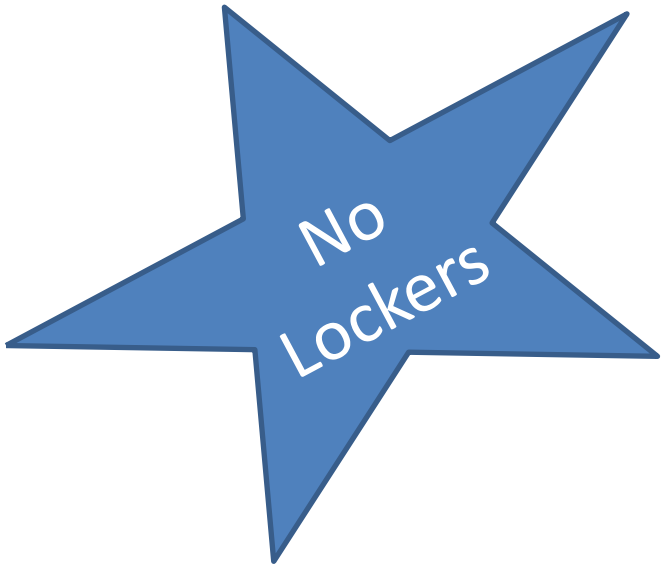


Warm up

Get out your study guide for review

Skipping more than 2 = bring back tomorrow

Give out tray papers

2NW Final Exam Review

Ch. 12
Section 4

12-4 Inequalities

Write an inequality for each situation.

1. Daniel has less than 37 pencils.

Pencils < 37

Ask yourself random numbers:

Could he have 10 pencils- yes!

Could he have 37 pencils- No (less than)

Could he have 40 pencils- No (less than)

2. Stacey has at least 16 marbles.

Marbles $\geq$ 16

Ask yourself random numbers:

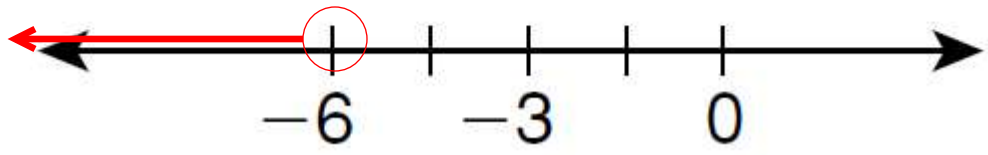
Could she have 10 marbles- No

(at least implies more than indicated)

Could she have 16 marbles- Yes

Graph each inequality.

3. $c < -6$



Open circle

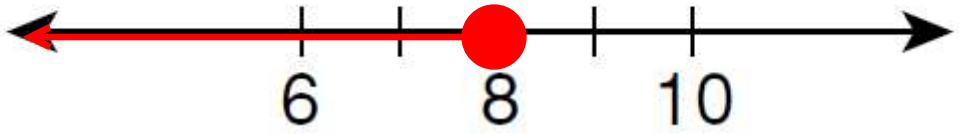
Shading:

Sub a random #

-10 < -6

true

4. $8 \geq z$



Closed circle

Shading:

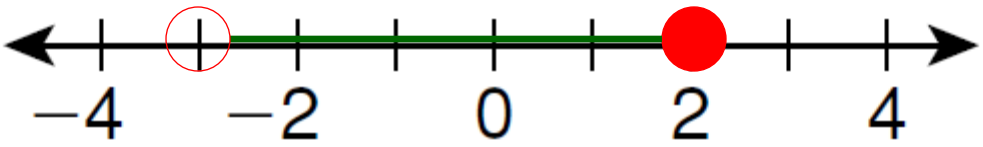
Sub a random #

8 ≥ 6

true

Graph each compound inequality.

5. $2 \geq n$ and $n > -3$

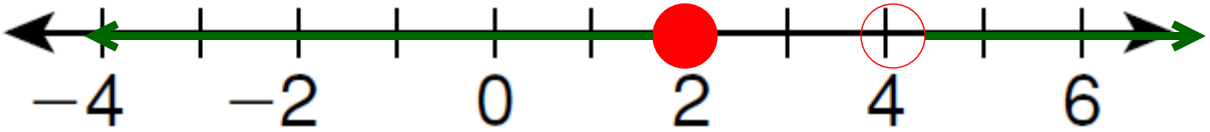


Closed circle

Open circle

And: coming together

6. $4 < r$ or $r \leq 2$



Open circle

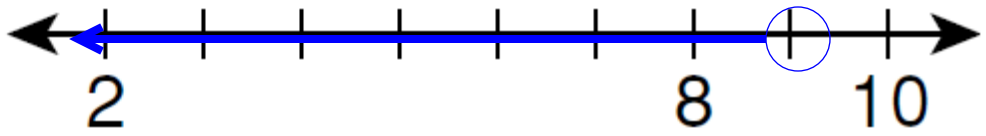
Closed circle

Or : apart

12-5 Solving Inequalities by Add

Solve. Then graph each solution set on a

7. $18 > y + 9$

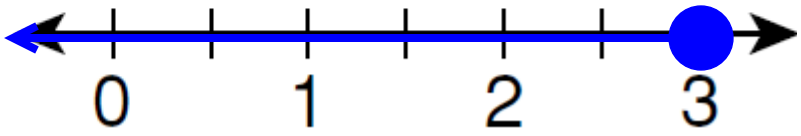


$18 > y + 9$

$-9 \qquad -9$

$9 > y$

8. $4 + m \leq 7$



$4 + m \leq 7$

$-4 \qquad -4$

$m \leq 3$

12-6 Solving Inequalities by Multiplying or Dividing

Solve. Check each answer.

12. $6t < 18$

13. $\frac{s}{7} \leq 8$

$\frac{6t}{6} < \frac{18}{6}$

$t < 3$

$(7)\ \frac{S}{7} \leq 8\ (7)$

$S \leq 56$

14. $\frac{v}{-4} \geq -6$

$(-4)\frac{v}{-4} \leq -6 \quad (-4)$

MULT - FLIP IT!!!

$v \leq 24$

15. $-2 > \frac{w}{4}$

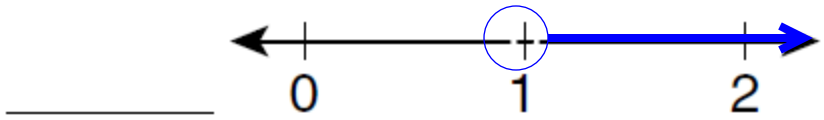
$(4)\ -2 > \frac{W}{4}\ (4)$

$-8 > W$

12-7 Solving Two-Step Inequalities

Solve. Then graph each solution set on a number line.

18. $3b + 6 > 9$



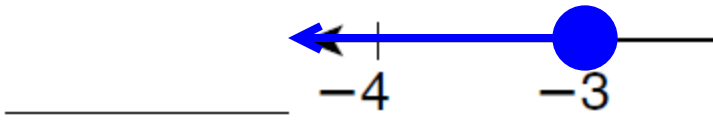
$3b + 6 > 9$

$-6 \quad -6$

$\frac{3b}{3} > \frac{3}{3}$

$b > 1$

19. $17 \leq -3k + 8$



$17 \leq -3k + 8$

$-8 \qquad -8$

$\frac{9}{-3} \leq \frac{-3k}{-3}$

Divid - FLIP IT!!!

$-3 \geq k$

Name _____ Date _____ Class _____

SECTION 5A

Ready to Go On? Quiz

5-1 Ratios

1. A music school has 40 guitar students, 75 piano students, 55 voice students, and 26 trumpet students. Tell whether the ratio of trumpet students to guitar students or the ratio of voice students to piano students is greater.

1950 2200

$\frac{26}{40}$ $\frac{55}{75}$

Option 1: get a common denominator

$\frac{1950}{3000}$ $\frac{2200}{3000}$

Option 2: Cross multiply

The ratio of voice students to piano students is greater

5-2 Rates

2. A cruise ship traveled 432 miles in 24 hours. What was its average rate of speed?

$$\frac{432}{24} \frac{\div 24}{\div 24} = \frac{18}{1}$$

18 miles per hour

3. Jeremy got 23 used paperback books for $14.95. Marissa got 17 used paperback books for $11.90. Who got the better buy?

$$\frac{17}{11.90} \frac{\div 11.90}{\div 11.90} = \frac{1 \text{ book}}{\$1}$$

$$\frac{23}{14.95} \frac{\div 14.95}{\div 14.95} = \frac{2 \text{ books}}{\$1}$$

Jeremy

5-4 Identifying and Writing Proportions

Find a ratio equivalent to each ratio. Then use the ratios to write a proportion.

10. $\frac{8}{20}$ _____ **11.** $\frac{12}{32}$ _____

Multiply or Divide the top and bottom of the ratio by ANY #

There are multiple correct answers for this section.

Possible ans below.

$\frac{8}{20} = \frac{4}{10}$ $\frac{12}{32} = \frac{120}{320}$

$\frac{8}{20} = \frac{40}{100}$ $\frac{12}{32} = \frac{6}{16}$

5-5 Solving Proportions

Use cross products to solve each proportion.

16. $\frac{x}{5} = \frac{45}{15}$

$15x = 225$

$\frac{15x}{15} = \frac{225}{15}$

$x = 15$

17. $\frac{8}{t} = \frac{32}{4}$

$32 = 32t$

$\frac{32}{32} = \frac{32t}{32}$

$1 = t$

18. $\frac{1.6}{8} = \frac{y}{120}$

$8y = 192$

$\frac{8y}{8} = \frac{192}{8}$

$y = 24$

19. $\frac{6.8}{170} = \frac{4.4}{w}$

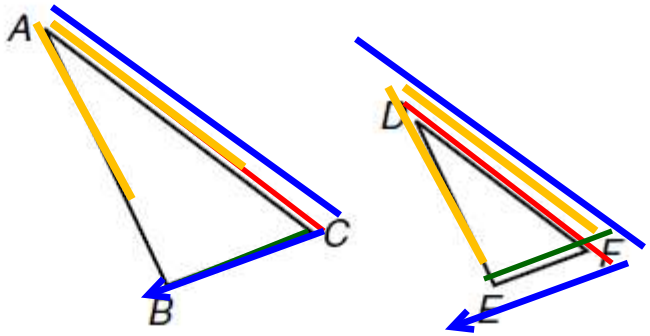
$6.8w = 748$

$\frac{6.8w}{6.8} = \frac{748}{6.8}$

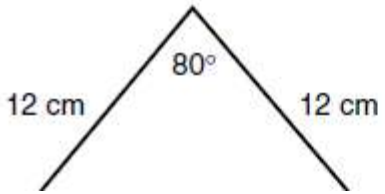
$w = 110$

5-7 Similar Figures and Proportions

Use the similar triangles to the to name the following.



1. corresponding side to $\overline{AC}$ $\overline{DF}$
2. corresponding side to $\overline{EF}$ $\overline{BC}$
3. corresponding angle to $\angle ACB$ < DFE
4. corresponding angle to $\angle EDF$ < BAC



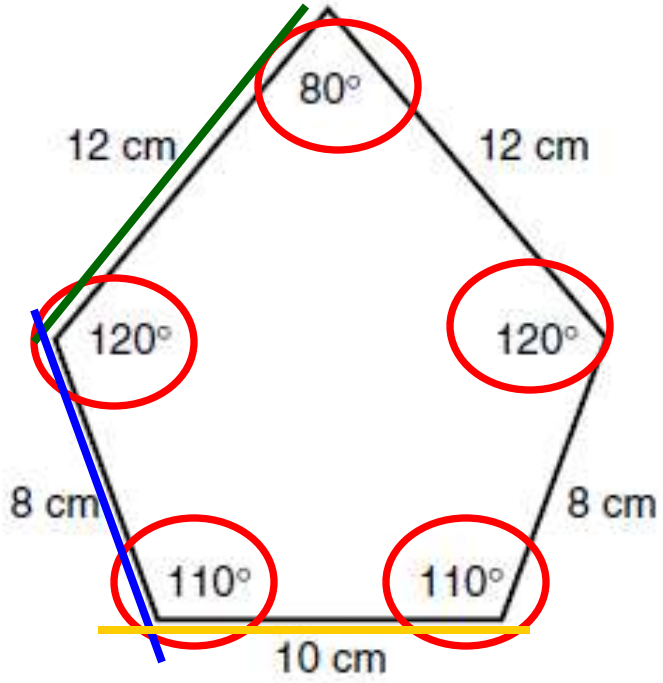
5. Are the pentagons similar?

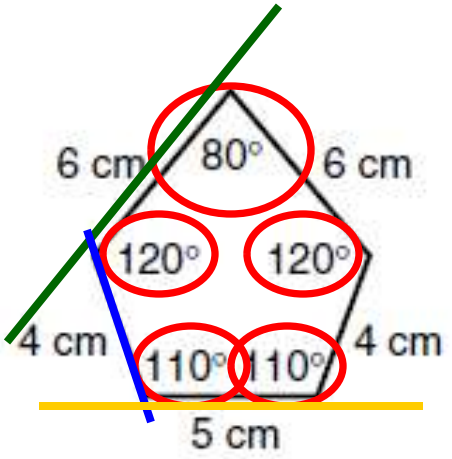
✓ Angles 1st

✓ They all match

✓ Sides next

✓ They are proportional





$\frac{12}{6} = \frac{2}{1}$ $\frac{8}{4} = \frac{2}{1}$ $\frac{10}{5} = \frac{2}{1}$

Yes- the figures are similar

5-8 Using Similar Figures

6. Araxi has a photo of her cat that is 6 inches by 4 inches. She ordered a copy reduced to a width of 2 inches for her wallet. What is the length of the reduced copy? *3 in*

4 in.

6 in.

2 in.

x

$\frac{6}{x} = \frac{4}{2}$

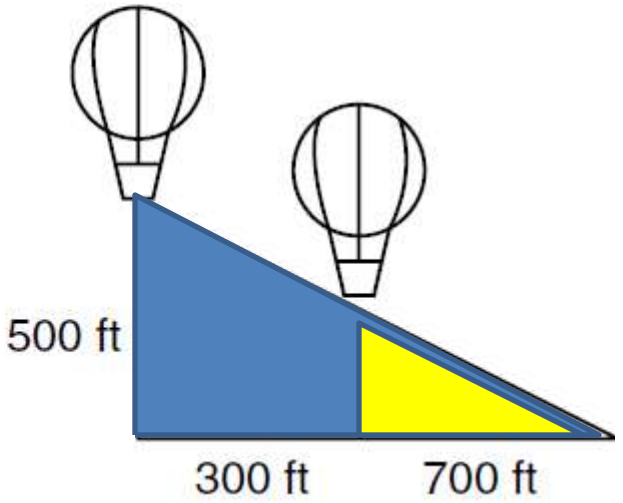
$\frac{4}{6} = \frac{2}{x}$

$4x = 12$

$X = 3$

7. Two hot-air balloons are heading for their landing target, as shown below. How high is the balloon closest to the target?

350 ft



Option 1:

$$\frac{500}{h} = \frac{1000}{700} \qquad \frac{h}{500} = \frac{700}{1000}$$

$$1000\,h = 350000$$

$$h = 350$$

Option 2:

$$\frac{500}{1000} = \frac{h}{700} \qquad \frac{1000}{500} = \frac{700}{h}$$

$$350000 = 1000h$$

$$h = 350$$

On to pages 3 and 4 …

5-9 Scale Drawings and Scale Models

9. The wingspan of an airplane is 108 feet. On a scale model of the airplane, the wingspan is 3 feet. What is the scale factor?

Write the ratio of the model plane to the actual plane.

Write the ratio in simplest form.

$$\frac{3}{108} \quad \frac{\div 3}{\div 3} = \frac{1}{36}$$

10. In Angel Stadium, located in Anaheim, California, the distance from home plate to the left field wall is 330 ft. What will that distance be in a diagram of the field with a scale factor of $\frac{1}{200}$?

$$\frac{\text{Model}}{\text{Actual}} \qquad \frac{x}{330\text{ ft}} = \frac{1}{200}$$

Actual wall to diagram of a wall… I should get smaller

$200x = 330$

$X = 1.65$

1.65 ft

11. On a map, the distance from one city to another measures about 5.3 cm. What is the approximate distance between those two cities if the map scale is 1 cm = 50 km.

$$\frac{\text{Model}}{\text{Actual}} \quad \frac{1 \text{ cm}}{50 \text{ km}} = \frac{5.3 \text{ cm}}{x}$$

$$X = 265$$

$$265 \text{ km}$$

% & Proportions

$$\frac{\%}{100} = \frac{\text{Is}}{\text{Of}}$$

6-4 Percent of a Number

Find the percent of each number. Round to the nearest tenth, if necessary.

26. 38% of 45

17.1

$\frac{38}{100} = \frac{x}{45}$

27. 51% of 200

102

$\frac{51}{100} = \frac{x}{200}$

28. 53% of 100

53

$\frac{53}{100} = \frac{x}{100}$

29. 3% of 40

1.2

$\frac{3}{100} = \frac{x}{40}$

42. A jacket is on sale at the mall. The regular price is $85 and it is on sale for 20% off. What is the sale price of the jacket?

$ 17 = Discount

$\frac{\%}{100} = \frac{\text{Discount}}{\text{Regular}}$ $\frac{20}{100} = \frac{x}{85}$

Reg – Disc = sales price

$85 – $17 = $68

% & Proportions

$$\frac{\%}{100} = \frac{\text{Is}}{\text{Of}}$$

6-5 Solving Percent Problems

Solve. Round to the nearest tenth, if necessary.

36. 13 is what percent of 200? 6.5%

$$\frac{x}{100} = \frac{13}{200}$$

37. 11 is 55% of what number? 20

$$\frac{55}{100} = \frac{11}{x}$$

38. 88 is 25% of what number? 352

$$\frac{25}{100} = \frac{88}{x}$$

39. 9 is what percent of 87? 10.3%

$$\frac{x}{100} = \frac{9}{87}$$

40. If Juan left a tip of $2.00 on his lunch bill of $12.50, what percent did he leave for a tip?

$$\frac{x}{100} = \frac{2.00}{12.50}$$

16%

% of Change

$70 - 45 = 25$ *Find the amount of change.*

percent of change = $\frac{25}{70}$ *Substitute values into formula.*

≈ 0.35714 *Divide.*

$\approx 35.7\%$ *Write as a percent. Round.*

Move 2 →

6-6 Percent of Change

Find each percent of change. Round answers to the nearest tenth of a percent, if necessary.

1. 23 is decreased to 13 $\approx 43.5\%$

Change = 10 $\frac{10}{23} \approx 0.4347826$

2. 91 is decreased to 83

$\frac{8}{91} \approx 8.8\%$

3. 60 is increased to 75

$\frac{15}{60} = 25\%$

4. 211 is increased to 413

$\frac{202}{211} \approx 95.7\%$

$$I = P \cdot r \cdot t$$

Interest = Principal x Rate (%) x time (in yrs)

Find the missing value.

$I =$ ☐ , $P = \$525$, $r = 7\%$, $t = 2$ years

$I = P \cdot r \cdot t$

$I = 525 \cdot 0.07 \cdot 2$ *Substitute. Use 0.07 for 7%.*

$I = \$73.50$ *Multiply.*

The simple interest is $73.50.

6-7 Simple Interest

Find the missing value.

I = \$204, P = \$1,700, r = ▭, t = 6 years

$I = P \cdot r \cdot t$

$204 = 1{,}700 \cdot r \cdot 6$ *Substitute.*

$204 = 10{,}200r$ *Multiply.*

$\frac{204}{10{,}200} = \frac{10{,}200r}{10{,}200}$ *Divide by 10,200 to isolate the variable.*

$0.02 = r$ *Write as a percent*

The interest rate is 2%

11. Find the missing value.

$I =$ ▭ , $P = \$600$, $r = 5\%$, $t = 2$ years

$I = P \cdot r \cdot t$

$I = 600 \cdot 0.05 \cdot 2$ *Substitute. Use 0.05 for 5%.*

$I = \$60$ *Multiply.*

12. Find the missing value.

$I =$ ▭ , $P = \$300$, $r = 4\%$, $t = 1$ year

$I = P \cdot r \cdot t$

$I = 300 \cdot 0.04 \cdot 1$ *Substitute. Use 0.04 for 4%.*

$I = \$12$ *Multiply.*

13. $I = \$33.12$, $P =$ ▭ , $r = 4\%$, $t = 3$ years

$I = P \cdot r \cdot t$

$33.12 = P \cdot 0.04 \cdot 3$ *Substitute.*

$33.12 = 0.12p$

$\frac{33.12}{0.12} = \frac{0.12p}{0.12}$

$ 276= *p*

Problem! 9 months are not a full yr. (*t*) is always measured in years.
Solution: 9 months = 3/4ths or 0.75 of a year

14. $I = \$37.50$, $P =$ ▭ , $r = 5\%$, $t =$ 0.75

$I = P \cdot r \cdot t$

$ 1000= *p*

$37.50 = P \cdot 0.05 \cdot 0.75$ *Substitute.*

$37.50 = 0.0375p$ *Multiply.*

$\frac{37.50}{0.0375} = \frac{0.0375p}{0.0375}$ *Divide to isolate the variable.*

15. I = \$150, P = \$1500 , r = ▭ , t = 5 years

$I = P \cdot r \cdot t$

$150 = 1500 \cdot r \cdot 5$ *Substitute.*

The interest rate is 2%

$150 = 7500r$ *Multiply.*

$\frac{150}{7500} = \frac{7500r}{7500}$ *Divide to isolate the variable.*

$0.02 = r$ *Write as a percent*

16 . I = \$51.00, P = \$340 , r = ▭ , t = 2 years

$I = P \cdot r \cdot t$

$51 = 340 \cdot r \cdot 2$ *Substitute.*

The interest rate is 7.5%

$51 = 680\, r$ *Multiply.*

$\frac{51}{680} = \frac{51r}{680}$ *Divide to isolate the variable.*

$0.075 = r$ *Write as a percent*

***17. I* = $126, *P* = $700 , *r* = 6% , *t* = ■**

$I = P \cdot r \cdot t$

$126 = 700 \cdot 0.06 \cdot t$ *Substitute.*

3 years

$126 = 42t$ *Multiply.*

$\frac{126}{42} = \frac{42t}{42}$ *Divide to isolate the variable.*

$3 = t$

***18. I* = $450, *P* = $2000 , *r* = 4.5% , *t* = ■**

$I = P \cdot r \cdot t$

5 years

$450 = 2000 \cdot 0.045 \cdot t$ *Substitute.*

$450 = 90t$ *Multiply.*

$\frac{450}{90} = \frac{90t}{90}$ *Divide to isolate the variable.*

$5 = t$

19. Vicki wants to deposit $12,000 in an account that earns 4.5% simple interest so she will have $15,000 when she starts college. How long will it take her to reach $15,000?

Wants to have = 15000 Deposited= 12000

Money earned = 15000 – 12000 = 3000

$$I = P \cdot r \cdot t$$

$3000 = 12000 \cdot 0.045 \cdot t$ *Substitute.*

$3000 = 540t$ *Multiply.*

$\frac{3000}{540} = \frac{540t}{540}$ *Divide to isolate the variable.*

$5.555555555 = t$

5.6 Years

3 Direct or Neither

X	Y
1	10
5	50
7	70

10 / 1= 10

50/5=10

70/7 = 10

k: 10

EQ: y = 10x

4. Direct or Neither

X	Y
2	18
3	12
4	9

18 / 2= 9

12/3=4

k: _____

EQ: _____

K = y ÷ x

5. Direct or Neither

X	Y
0.2	60
1.2	10
2.5	4.8

60 /0.2= 300

10/1.2= 8.333

k: _____

EQ: _____

6. Direct or Neither

X	Y
0.1	0.3
13	39
14	42

0.3/.1= 3

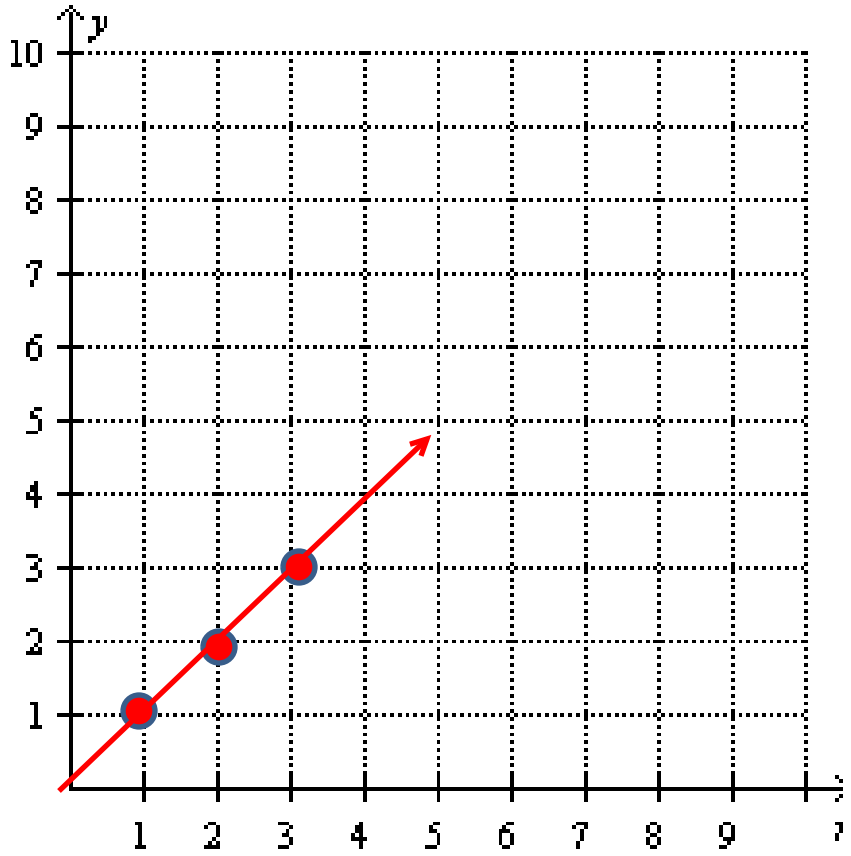
39/13=3

42/14 = 3

k: 3

EQ: y = 3x

Graph the direct variation function $y = x$



Substitute random #s for x to find y

x	Y
1	1
2	2
3	3

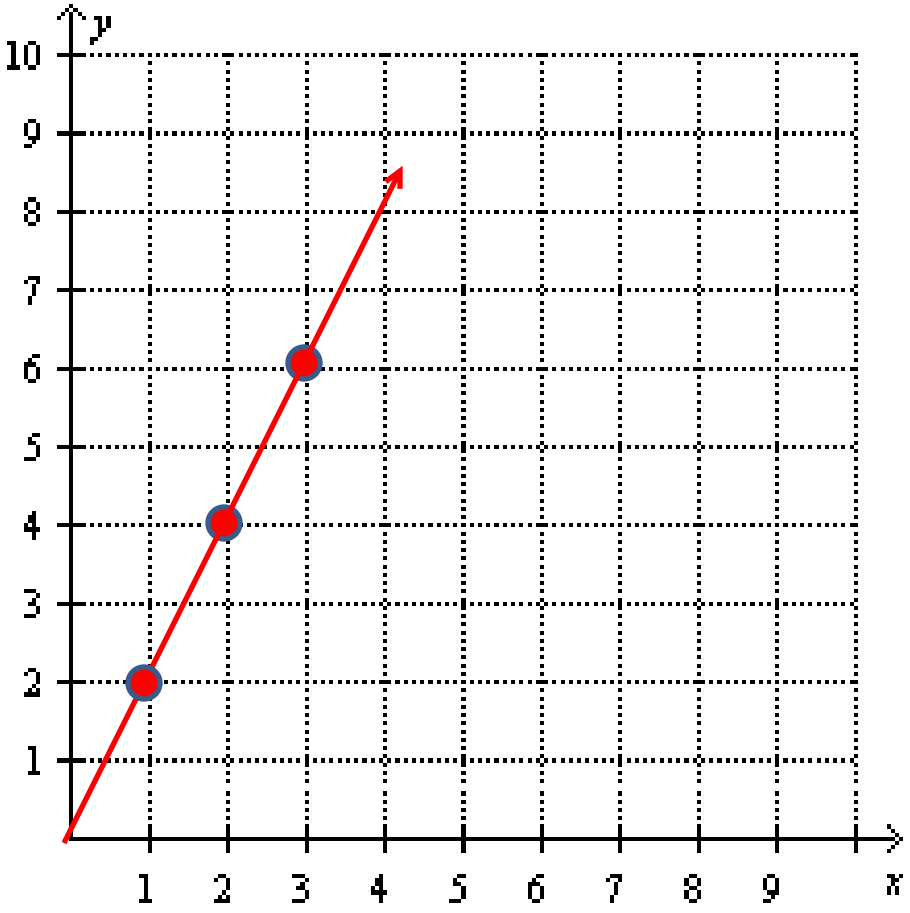
Plot and draw a line

If y = kx,

then k = 1

Graph the direct variation function $y = 2x$.

Substitute random #s for x to find y



x	Y
1	2
2	4
3	6

Plot and draw a line

If y = kx,

then k = 2

Disclaimer:

Please be aware that memorization of this power point does not guarantee the passing of the final exam. The sample problems are meant to be a guide as to what to study for the nine weeks exam on Friday. Effective studying can be accomplished if the ppt is accompanied by review of homework; workbook, class worksheets, math textbook, class tests and quizzes as well as online power points and tutorials.

In other words… review everything ☺

Happy Testing