①

Section#1.1 Real Numbers

Standard=

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Types of Real Numbers

- Natural Numbers: 1, 2, 3, 4, . . .
- Integers: . . ., -3, -2, -1, 0, 1, 2, 3, . . .
- Rational Numbers: can be expressed as $\frac{m}{n}$ where n≠0

Ex: $\frac{1}{3}, \frac{-2}{5}, .52 = \frac{52}{1}, .023 = \frac{23}{100}$

- Irrational Numbers: A number that cannot be expressed as a ratio of integers

Ex: $\sqrt{3}, \sqrt[3]{5}, \pi, \frac{5}{\pi}$

③

Example: List the elements of the given set that are natural numbers, integers, rational and irrational.

$\{1.001, 0.333\ldots, -\pi, -11, 11, \frac{13}{15}, \sqrt{16}, 3.14, \frac{15}{3}\}$

natural: 11, $\sqrt{16}=4$, $\frac{15}{3}=5$

integers: -11, 11, $\sqrt{16}$, $\frac{15}{3}$

rational #'s: 1.001, 0.333..., -11, 11, $\frac{13}{15}$, $\sqrt{16}$, 3.14, $\frac{15}{3}$

irrational #'s: $-\pi$

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Properties of Real Numbers

- Commutative Property
  $a+b=b+a$
  $ab=ba$
- Associative Property
  $(a+b)+c=a+(b+c)$
  $(ab)c=a(bc)$
- Distributive Property
  $a(b+c)=ab+ac$
  $(b+c)a=ab+ac$

⑤

Example: State the property.

(a) $2(a+b)=2a+2b$ distributive property

(b) $3(2x+y)=(2x+y)3$ commutative prop. of multi.

Example: Rewrite the expression using the given property.

(a) Associative Property of Multi.
7(3x)= $(7\cdot 3)x$

⑥

Example: Write each statement in terms of inequalities.

(a) y is negative $y<0$

(b) x is greater then 1 $x>1$

(c) x is at most 8 $x\leq 8$

(d) w is positive and is less then or equal to 17 $0<x\leq 17$

(7)

Sets and Intervals

Set= a collection of objects (numbers) called elements

Ex: Let S be a set

$a \in S$ means "a" is an element of S

$a \notin S$ means "a" is not an element of S

Writing Sets

•With Braces S={1, 2, 3, 4, 5, 6}

•Set-builder notation S={x| 0<x<7}

(8)

If S and T are sets, then the . . .

Union $S \cup T$ is the set of elements that are in S or T (or both)

Intersection $S \cap T$ is the set of elements that are in both S and T

Empty set ϕ is the set that contains no elements

(9)

Example: If S={1, 3, 5, 6, 8}, T={6, 8, 9, 10} and V={9, 10, 11}.

Find $S \cup T, S \cap T, S \cap V$.

everything

$S \cup T = \{1, 3, 5, 6, 8, 9, 10\}$

in common

$S \cap T = \{6, 8\}$

$S \cap V = \phi$ empty set

no values in set

(10)

Intervals

Open Intervals: from "a" to "b" consists of all numbers between "a" and "b" and is denoted by (a,b)

a<x<b

Closed Interval: from "a" to "b" including the endpoints and is denoted by [a,b]

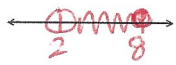
$a \le x \le b$

(11)

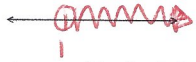
Example: Express the interval in terms of inequalities and then graph.

(a) (2,8]

$2 < x \le 8$



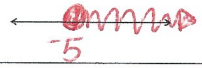
(b) $(1, \infty)$ $x > 1$



Example: Express the inequality in interval notation and then graph.

(a) $x \ge -5$

$[-5, \infty)$



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Homework: (11)

Section#1.1: pg#10: 1-23odd, 27-37odd, 41-65odd

Pre-cal: Notes #1.2

8/13/2010

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Section#1.2
Exponents and Radicals

STANDARD: ALGEBRA 2 REVIEW

(2)

Zero Exponent	Negative Exponent
$a^0 = 1$	$a^{-n} = \frac{1}{a^n}$

EXAMPLE: EVALUATE

(A) $\left(\frac{4}{7}\right)^0 = 0$

(B) $x^{-1} = \frac{1}{x^1} = \boxed{\frac{1}{x}}$

(C) $(-2)^{-3} = \frac{1}{(-2)^3} = \boxed{\frac{-1}{8}}$

(3)

Laws of Exponents

$a^m \bullet a^n = a^{m+n}$

$\frac{a^m}{a^n} = a^{m-n}$

$(a^m)^n = a^{mn}$

$(ab)^m = a^m b^m$

$\left(\frac{a}{b}\right)^m = \frac{a^m}{b^m}$

$\left(\frac{a}{b}\right)^{-n} = \left(\frac{b}{a}\right)^n$

$\frac{a^{-n}}{b^{-m}} = \frac{b^m}{a^n}$

(4)

Example: Evaluate.

(a) $5^2 \bullet \left(\frac{1}{5}\right)^3$

$5^2 \cdot \frac{1}{5^3} = \boxed{\frac{1}{5}}$

(b) $\frac{10^7}{10^4} = 10^3 = \boxed{1000}$

(c) $\frac{3^5}{3^{-2}}$ $3 \cdot 3^2 = 3^3 = \boxed{27}$

(d) $\left(\frac{4^{-3}}{2^{-5}}\right)$ $\frac{25}{4^3} = \frac{32}{64} = \boxed{\frac{1}{2}}$

(e) $\left(\frac{2}{3}\right)^{-3} = \left(\frac{3}{2}\right)^3 = \frac{3^3}{2^3} = \boxed{\frac{27}{8}}$

(f) $(3y^{-2})(4y^{-5})$ $\boxed{12y^7}$

(5)

(g) $\frac{x^5(2x)^3}{x^2} = \frac{x^5 \cdot 2^3 \cdot x^3}{x^2} = \frac{8x^8}{x^2} = \boxed{8x^6}$

(h) $\frac{(2x^3)^2}{(x^3)^4} = \frac{2^2 x^6}{x^{12}} = \frac{4x^6}{x^{12}} = \boxed{\frac{4}{x^6}}$

(i) $(2x^3y^{-4})\left(\frac{1}{4}x^{-6}\right)(16y^4)$

$8x^{-3}y^3 = \boxed{\frac{8y^3}{x^3}}$

(6)

Homework

SECTION=1.2
PG=21: 9, 11, 27-43ODD

(11)

(7)

Properties of Radicals

$\sqrt[n]{ab} = \sqrt[n]{a} \cdot \sqrt[n]{b}$ $\qquad a^{\frac{1}{n}} = \sqrt[n]{a}$

$\sqrt[n]{\frac{a}{b}} = \frac{\sqrt[n]{a}}{\sqrt[n]{b}}$ $\qquad a^{\frac{m}{n}} = \left(\sqrt[n]{a}\right)^m = \sqrt[n]{a^m}$

$\sqrt[m]{\sqrt[n]{a}} = \sqrt[mn]{a}$

(10)

Example: Evaluate

(a) $25^{\frac{1}{2}} = \sqrt{25} = 5$

(b) $32^{\frac{2}{5}}$ $\left(\sqrt[5]{32}\right)^2$ $2^2 = 4$

(c) $\left(\frac{27}{8}\right)^{\frac{2}{3}}$ $\left(\sqrt[3]{\frac{27}{8}}\right)^2 = \left(\frac{3}{2}\right)^2 = \frac{9}{4}$

(d) $\left(2x^{\frac{3}{2}}\right)\left(4x\right)^{\frac{1}{2}}$ $= 2x^{3/2}\, 4^{\frac{1}{2}} x^{-\frac{1}{2}}$ $= \frac{2x^1}{4^{\frac{1}{2}}} = \frac{2x}{\sqrt{4}} = \frac{2x}{2} = x$

(8)

Example: Evaluate.

(a) $\sqrt{64} = 8$

(b) $\sqrt{72}$ $2\,|\,72$, $6\,|\,36$, 6 $\quad 6\sqrt{2}$

(c) $\sqrt{75} + \sqrt{48}$ $\quad 5\sqrt{3} + 4\sqrt{3} = 9\sqrt{3}$

(d) $\sqrt[3]{64}$ $\sqrt[3]{4^3} = 4$

(e) $\sqrt[5]{-32}$ $\sqrt[5]{(-2)^5} = -2$

(f) $\sqrt[3]{\frac{8}{125}}$ $\sqrt{\frac{2^3}{5^3}} = \frac{2}{5}$

$3\,|\,75$, $5\,|\,25$, 5

$3\,|\,48$, $4\,|\,16$, 4

(11)

(e) $\left(8x^6\right)^{\frac{2}{3}}$ $= (8x^6)^{2/3}$ or $\sqrt{\quad}$ $= \frac{1}{8^{\frac{2}{3}}x^4} = \frac{1}{\sqrt[3]{8^2}x^4} = \frac{1}{4x^4}$

(f) $\left(4x^6y^8\right)^{\frac{3}{2}}$ $\left(\sqrt{4x^6y^8}\right)^3$ $(2x^3y^4)^3 = 8x^9y^{12}$

(g) $\frac{1}{\sqrt{5}}\frac{\sqrt{5}}{\sqrt{5}} = \frac{\sqrt{5}}{5}$

(h) $\sqrt{\frac{x}{6}}\frac{\sqrt{10}}{\sqrt{10}}$ $\frac{\sqrt{10x}}{10}$

(9)

(g) $\sqrt[5]{g^{10}}$ $\sqrt{(g^2)^5}$ g^2

(h) $\sqrt[3]{x^3y^6}$ xy^2

(12)

Homework

SECTION=1.2
PG=21
1-7ODD, 13-17ODD, 23, 25, 45-49ODD, 53-61ODD, 83, 85

(11)

Pre-calculus (11)

8/16/2010

Section#1.3
Algebcraic Expressions

Standard: Algebra 2 Review

Example: Factor out the common factor.

(a) $\frac{2x^4+4x^3-14x^2}{x^2+2x-7}$ $\quad 2x^2$ $\quad 2x^2(x^2+2x-7)$

(b) $\frac{(z+2)^2-5(z+2)}{(z+2)-5}$ $\quad (z+2)$ $\quad (z+2)(z-3)$

$z-3$

Types of Polynomials

Monomial-one term
Binomial-two terms
Trinomial-three terms

Example: State the type of polynomial, then list the terms and state its degree.

(a) $2x^5+4x^2$ Binomial, degree = 5
$2x^5, 4x^2$

(b) $x-x^2+\sqrt{3}x^3$ Trinomial, degree = 3
$x, -x^2, \sqrt{3}x^3$

Example: Factor.

(a) $x^2+7x+12$ $\quad (x+3)(x+4)$

(b) $x^2+3x-18$ $\quad (x+6)(x-3)$

(c) $x^2+3x-10$ $\quad (x+5)(x-2)$

(d) $6x^2+x-12$ $\quad (2x+3)(3x-4)$

(e) $4x^2-13x-12$ $\quad (x-4)(4x+3)$

Example: Perform the indicated operation and simplify.

(a) $(5-3x)+(2x-8)$ $= -x-3$

(b) $(3x^2+x+1)-(2x^2-3x-5)$ $= x^2+4x+6$
$-2x^2+3x+5$

(c) $4(x^2-3x+5)-3(x^2-2x+1)$
$4x^2-12x+20-3x^2+6x-3$ $= x^2-6x+17$

(d) $(4x-3y)(2x+5y)$
$8x^2+20xy-6xy-15y^2$
$= 8x^2+14xy-15y^2$

Homework

Section=1.3

Pg=31: 3-54 multiples of 3's

(11)

Special Factoring Formulas

$A^2 - B^2 = (A-B)(A+B)$

$(A+B)^2 = A^2 + 2AB + B^2$

$(A-B)^2 = A^2 - 2AB + B^2$

$A^3 + B^3 = (A+B)(A^2 - AB + B^2)$

$A^3 - B^3 = (A-B)(A^2 + AB + B^2)$

Example: Factor completely.

(a) $12x^3 + 18x$ — GCF $6x$: $6x(2x^2+3)$

(b) $9x^2 - 36x - 45$: $9(x^2-4x-5)$; $-5 \cdot 1 = -5$, $-5 + 1 = -4$: $9(x-5)(x+1)$

(c) $3x^3 - 27x$: $3x(x^2-9)$; $3x(x+3)(x-3)$

(d) $x^6 - 8y^3$: $(x^2-2y)(x^4+2x^2y+4y^2)$

Example: Factor.

(a) $4x^2 - 25$: $(2x-5)(2x+5)$

(b) $49y^2 - 1$: $(7y-1)(7y+1)$

(c) $x^2 + 12x + 36$: $(x+6)^2$

(d) $25x^2 - 10xy + y^2$: $(5x-y)^2$

(e) $27x^3 - 1$: $(3x-1)(9x^2+3x+1)$

(f) $x^6 + 8$: $(x^2+2)(x^4-2x^2+4)$

Homework

Section=1.3

Pg=31: 57-96 multiples of 3's

Example: Factor by grouping.

(a) $x^3 + x^2 + 4x + 4$: x^2 | 4; $x+1$ | $x+1$: $(x+1)(x^2+4)$

(b) $x^3 - 2x^2 - 3x + 6$: x^2 | -3; $x-2$ | $x-2$: $(x-2)(x^2-3)$

Pre-calculus

(1)

Section#1.4
Rational Expressions

Standard# Algebra 2 Review

(2)

The domain of an algebraic expression is the set of numbers that the variable can represent.

Example: Find the domain.

(a) $-x^4+x^3+9x$

All real #'s

(b) $\frac{2x^2-5}{3x+6}$

$3x+6 \neq 0$

$-6 \quad -6$

$3x \neq -6$

$x \neq -2$

All real #'s except $x=-2$

(c) $\frac{1}{\sqrt{x-1}} \geq 0$

$x-1 \geq 0$

$x \geq 1$

(3)

Example: Simplify

(a) $\frac{x^2-x-2}{x^2-1}$

$\frac{(x-2)(x+1)}{(x+1)(x-1)}$

$\frac{(x-2)}{(x-1)}$

(b) $\frac{y^2-3y-18}{2y^2+5y+3}$

$\frac{(y-6)(y+3)}{(2y+3)(y+1)}$

(4)

Example: Multiply or divide. Then simplify.

(a) $\frac{x^2-25}{x^2-16} \cdot \frac{x+4}{x+5}$

$\frac{(x+5)(x-5)}{(x+4)(x-4)} \cdot \frac{(x+4)}{(x+5)}$

$\frac{x-5}{x-4}$

(b) $\frac{x^2-x-6}{x^2+2x} \cdot \frac{x^3+x^2}{x^2-2x-3}$

$\frac{(x-3)(x+2)}{x(x+2)} \cdot \frac{x^2(x+1)}{(x-3)(x+1)}$

$\frac{x(x+1)}{(x+1)} = x$

(5)

(c) $\frac{4y^2-9}{2y^2+9y-18} \div \frac{2y^2+y-3}{y^2+5y-6}$

$\frac{(2y-3)(2y+3)}{(2y-3)(y+6)} \div \frac{(2y+3)(y-1)}{(y+6)(y-1)}$

$\frac{(2y-3)(2y+3)}{(2y-3)(y+6)} \cdot \frac{(y+6)(y-1)}{(2y+3)(y-1)} = 1$

(6)

Example: Add or subtract. Then simplify.

(a) $\frac{2x-1}{x+4} - \frac{1}{1}$ (LCD: $x+4$)

$\frac{2x-1-(x+4)}{x+4}$

$\frac{2x-1-x-4}{x+4}$

$\frac{x-5}{x+4}$

(b) $\frac{x}{x-4} - \frac{3}{x+6}$ (LCD: $(x-4)(x+6)$)

$\frac{x^2+6x-(3x-12)}{(x-4)(x+6)}$

$\frac{x^2+6x-3x+12}{(x-4)(x+6)}$

$\frac{x^2+3x+12}{(x-4)(x+6)}$

(7)

(c) $\frac{x}{x^2-4}+\frac{1}{x-2}$ (d) $\frac{x}{x^2-x-6}-\frac{1}{x+2}-\frac{2}{x-3}$

$\frac{x}{(x+2)(x-2)}+\frac{1(x+2)}{(x-2)(x+2)}$ $\frac{x}{(x-3)(x+2)}-\frac{1(x-3)}{(x+2)}-\frac{2(x+2)}{(x-3)}$

$\frac{x+x+2}{(x+2)(x-2)}$ $\frac{x-x+3-2x-4}{(x-3)(x+2)}$

$\frac{2x+2}{(x+2)(x-2)}$ $\frac{-2x-1}{(x-3)(x+2)}$

$\frac{2(x+1)}{(x+2)(x-2)}$

(8)

Example: Rationalize.

(a) $\frac{2}{3-\sqrt{5}}$ $\frac{(3+\sqrt{5})}{(3+\sqrt{5})}=\frac{6+2\sqrt{5}}{9-5}$

$\frac{6+2\sqrt{5}}{4}\div 2$

$\frac{3+\sqrt{5}}{2}$

(9)

Homework

- Section#1.4: pg#41
  1-25odd, 31-47odd,
  51, 73, 75

Pre-calculus

①

Section#1.5
Equations

Standard# Algebra 2 Review

②

Example: Determine whether the given values are a solution.

(a) $1-[2-(3-x)]=4x-(6+x)$

$1-[2-3+x]=4x-6-x$

$1-2+3-x=3x-6$

$-x+2=3x-6$

$+x \quad +6 \quad +x \quad +6$

$8=4x$ $\quad x=2$

③

Example: Solve.

(a) $\left(\frac{x}{5}=\frac{3}{10}x+7\right)10$

$2x=3x+70$

$-3x \quad -3x$

$-x=70$

$x=-70$

④

Example: Solve for the indicated variable.

(a) P=2l + 2w, solve for w.

$P=2l+2w$

$-2l \quad -2l$

$\frac{P-2l}{2}=\frac{2w}{2}$

$w=\frac{P-2l}{2}$

⑤

Example: Solve by factoring.

(a) $x^2+3x-4=0$

$(x+4)(x-1)=0$

$x+4=0 \quad x-1=0$

$x=-4 \quad | \quad x=1$

(b) $2y^2+7y+3=0$

6

$y \quad 2y$

$3 \quad 6$

$2y \quad 1$

7

$(2y+1)(y+3)=0$

$2y+1=0 \quad y+3=0$

$y=-\frac{1}{2} \quad | \quad y=-3$

⑥

Example: Solve by completing the square.

(a) $x^2-4x+2=0$

$x^2-4x+4=-2+4$

$-\frac{4}{2}\rightarrow(-2)^2$

$\sqrt{(x-2)^2}=\sqrt{2}$

$x-2=\pm\sqrt{2}$

$x=2\pm\sqrt{2}$

(b) $x^2+3x-\frac{7}{4}=0$

$x^2+3x+\frac{9}{4}=\frac{7}{4}+\frac{9}{4}$

$\frac{3}{2}\rightarrow(\frac{3}{2})^2 \quad \frac{16}{4}$

$\sqrt{(x+\frac{3}{2})^2}=\sqrt{4}$

$x+\frac{3}{2}=\pm 2$

$x=-\frac{3}{2}\pm 2$

$x=\frac{1}{2},\frac{-7}{2}$

(7)

Quadratic Formula

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

(10)

Homework

~~Section#1.5: pg#55~~

1, 5-15odd, 23, 25, 37-41odd, 45-47odd, 53-57odd, 69, 81, 96

(8)

Example: Solve using the quadratic formula.

(a) $3x^2 + 7x + 4 = 0$

$a=3 \quad b=7 \quad c=4$

$= \frac{-7 \pm \sqrt{49 - 4(3)(4)}}{2(3)}$

$= \frac{-7 \pm \sqrt{49 - 48}}{6}$

$= \frac{-7 \pm \sqrt{}}{6}$

$= \frac{-7+1}{6}$

$= \frac{-7+1}{6}$

$\boxed{-1}$

$\frac{-7-1}{6} = \boxed{\frac{-4}{3}}$

(9)

Example: Find all real number solutions.

(a) $\sqrt{5-x} + 1 = x - 2$ (b) $|2x+1| = 3$

$\sqrt{5-x} = (x-3)^2$

$5 - x = x^2 - 6x + 9$

$-5 + x \quad +x \quad -5$

$x^2 + 5x + 4 = 0$

$(x+4)(x+1) = 0$

$\boxed{x = -4} \quad \boxed{x = -1}$

$2x+1 = 3$

$2x = 2$

$\boxed{x = 1}$

$2x+1 = -3$

$2x = -4$

$\boxed{x = -2}$

Pre-cal

① Standard# Algebra 2 Review

SECTION#1.7 INEQUALITIES

④ **Guidelines for Solving Nonlinear Inequalities**

1. Move all terms to one side
2. Factor
3. Find intervals
   - -Determine the values for which each factor is zero
4. Make a table
   - -Use test values to make a table of the signs(+/-) of each factor
5. Solve

② **Example**: Solve. Express the solution using interval notation and graph.

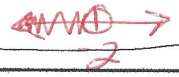
(a) $3x+11<5$

$-11\ -11$

$3x<-6$

$x<-2$

$(-\infty,-2)$



(b) $6-x\geq 2x+9$

$+x\ \ +x$

$6\geq 3x+9$

$-9\ \ -9$

$-3\geq 3x$

$-1\geq x$

$x\leq -1$

$(-\infty,-1]$

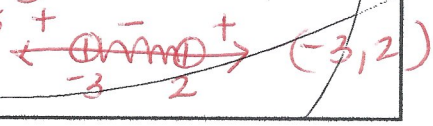
⑤ **Example: Solve.**

(a) $\frac{2x+6}{x-2}\leq 0$ less than (or eq)

$2x+6=0 \quad x-2=0$

$2x=-6 \quad x=2$

$x=-3$



$(-3,2)$

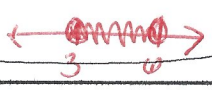
③ (c) $5\leq 3x-4\leq 14$

$+4\ \ +4\ \ +4$

$\frac{9}{3}\leq \frac{3x}{3}\leq \frac{18}{3}$

$3\leq x\leq 6$

$[3,6]$



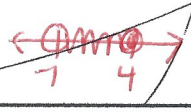
(d) $1<3x+4\leq 16$

$-4\ \ -4\ \ -4$

$\frac{-3}{3}<\frac{3x}{3}\leq \frac{12}{3}$

$-1<x\leq 4$

$(-1,4]$



⑥ (b) $(x-5)(x+4)\geq 0$

$x-5=0 \quad x+4=0$

$x=5 \quad x=-4$

$(-\infty,-4]\cup[5,\infty)$

(c) $x^2+5x+6>0$

$(x+3)(x+2)>0$

$x+3=0 \quad x+2=0$

$x=-3 \quad x=-2$

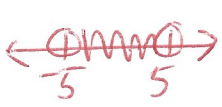
$(-\infty,-3)\cup(-2,\infty)$

(7)

(d) $|3x| < 15$ (e) $|x+1| \geq 1$

$\frac{3x}{3} < \frac{15}{3}$ $\frac{3x}{3} > \frac{-15}{3}$ $x+1 \geq 1$ $x+1 \leq -1$

$x < 5$ $x > -5$ $x \geq 0$ $x \leq -2$



$(-5,5)$ $(-\infty,-2] \cup [0,\infty)$

(8)

Section#1.7

Pg#84: 7-13odd, 21-25odd, 29-35odd, 47, 51, 63-67odd

HOMEWORK

Pre-calculus

Section#1.10 Lines

Standard# Algebra 2 Review

Important Formulas

Slope-intercept form	$y=mx+b$
Point-slope form	$y-y_1=m(x-x_1)$
General Form	$Ax+By+C=0$
Vertical line through (a,b)	$x=a$
Horizontal line through (a,b)	$y=b$

Slope of a line

$$m=\frac{rise}{run}=\frac{y_1-y_2}{x_1-x_2}$$

Stack and Subtract

(x_1, y_1)
(x_2, y_2)
y_1-y_2
x_1-x_2

Example: Find an equation of the line that satisfies the given conditions.

(a) Through (-2,4); slope -1.

x y
m
$y=mx+b$
$4=(-1)(-2)+b$
$4=2+b$
$-2\ \ -2$
$2=b$
$y=-x+2$

or

$x+y-2=0$

(b) Through (-1, -2) and (4, 3).

$(-1,-2)$
$\frac{3+2}{4+1}=\frac{5}{5}=1=m$
$y=mx+b$
$3=1(4)+b$
$3=4+b$
$-1=b$
$y=x-1$
$x-y-1=0$

Example: Find the slope.

(a) (1, 2) and (3, 3)

$(1,2)$
$\frac{3-2}{3-1}=\frac{1}{2}$

(b) (2, -5) and (-4, 3)

$(2,-5)$
$\frac{3+5}{-4-2}=\frac{8}{-6}=\frac{-4}{3}$

(c) x-intercept -8; y-intercept 6.

$(-8,0)\ (0,6)$
x y
$b=6$
$y=mx+b$
$0=m(-8)+6$
$-6=-8m$
$-8\ \ -8$
$\frac{3}{4}=m$
$y=\frac{3}{4}x+6$
$4y=3x+24$
$3x-4y+24=0$

(d) Through (5,2) and parallel to $4x+6y+5=0$.

x y
$y=mx+b$
$2=-\frac{2}{3}(5)+b$
$2=-\frac{10}{3}+b$
$+\frac{10}{3}\ \ +\frac{10}{3}$
$\frac{16}{3}=b$
$y=-\frac{2}{3}x+\frac{16}{3}$
$3y=-2x+16$
$2x+3y-16=0$

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

(e) Through (-1, -2) and perpendicular to $2x+5y+8=0$.

$\frac{5y}{5} = \frac{-2x}{5} - \frac{8}{5}$

$y = -\frac{2}{5}x - \frac{8}{5}$

$\perp m = \frac{5}{2}$

$y = mx+b$

$-2 = \frac{5}{2}(-1)+b$

$-2 = -\frac{5}{2}+b$

$+\frac{5}{2} \quad +\frac{5}{2}$

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

$y = \frac{5}{2}x + \frac{1}{2}$

$2y = 5x+1$

$5x-2y+1=0$

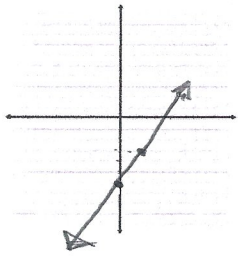
Example: Find the slope and y-intercept. Then graph.

(a) $3x - 2y = 12$

$\frac{-2y}{-2} = \frac{-3x}{-2} + \frac{12}{-2}$

$y = \frac{3}{2}x - 6$

$m = \frac{3}{2} \quad b = -6$



Homework

Section#1.10

Pg#120: 1-7odd, 11-31odd, 41-45odd