

10/5/Precalc

Exam 1

Quiz 11

avg 77%
med 81%

$$\begin{array}{r} 150 \\ 135 \\ 120 \\ 105 \\ 90 \end{array} \begin{array}{l} \hline 5 \\ 4 \\ 3 \\ 3 \\ 4 \end{array}$$

Exam 1

Comments:

$$\left(\frac{5x^2}{4}\right)^{\textcircled{1}} \cdot \left(\frac{5x}{4^2}\right)^2$$

$$\frac{\cancel{4}}{\cancel{5}^2} \cdot \frac{\overset{\downarrow 5}{\cancel{25}}^2}{\cancel{4}^4} = \frac{5}{4^3}$$

$$(b) \frac{4}{(3-\sqrt{7})} \cdot \frac{(3+\sqrt{7})}{(3+\sqrt{7})} = \frac{12+4\sqrt{7}}{9-7=2}$$

$6+2\sqrt{7}$

$$(d) \quad x^2 - 6x - 11 = 0$$

$$\underbrace{x^2 - 6x + 9}_{(x-3)^2} = 11 + 9$$

$$(x-3)^2 = 20$$

$$x-3 = \pm \sqrt{20}$$

$$x = 3 \pm \sqrt{20}$$

(e)

$$\sqrt{2x-1} + 2 = x$$

$$\sqrt{2x-1} = x-2$$

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

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

$$0 = x^2 - 6x + 5$$

$$= (x-5)(x-1) \Rightarrow$$

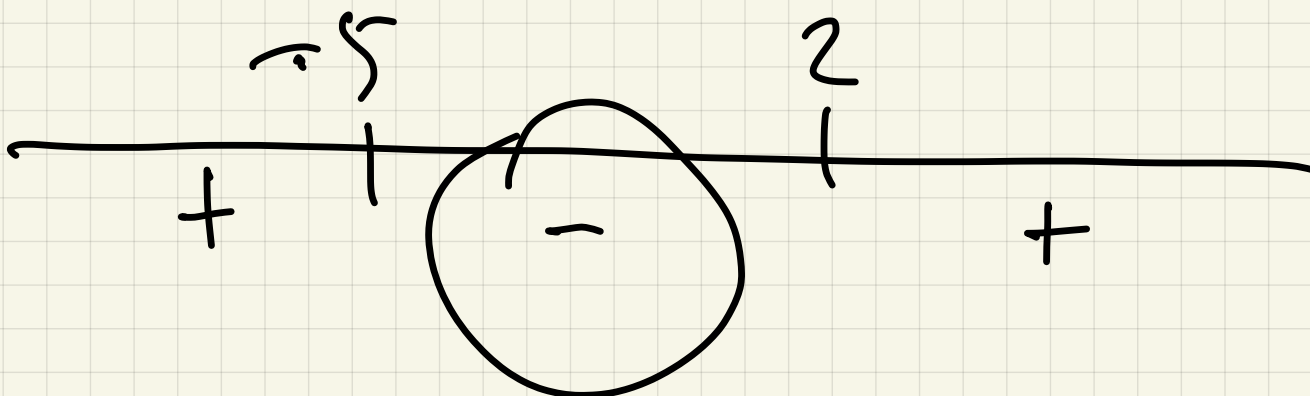
$$x = \cancel{5} \text{ (5) } \checkmark$$

3 (b) $x^2 + 3x \leq 10$

$$\underline{x^2 + 3x - 10 \leq 0}$$

$$= (x+5)(x-2) \leq 0$$

$$0 \text{ at } x = -5, 2$$



$$[-5, 2]$$

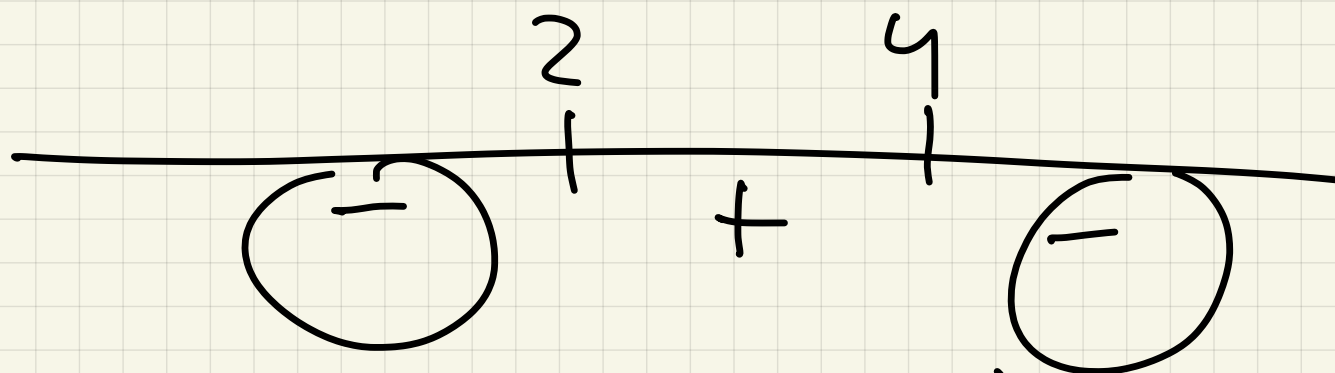
(c) $\frac{6}{x-2} \leq 3$

$$\underline{\underline{\frac{6}{x-2} - 3 \leq 0}}$$

$$\frac{6}{x-2} - \frac{3(x-2)}{x-2} \leq 0$$

$$\frac{6 - 3x + 6}{x-2} \leq 0$$

$$\frac{-3x + 12}{x-2} \leq 0 \quad \begin{matrix} x=4, \\ x=2 \end{matrix}$$



$$(-\infty, 2] \cup [4, \infty)$$

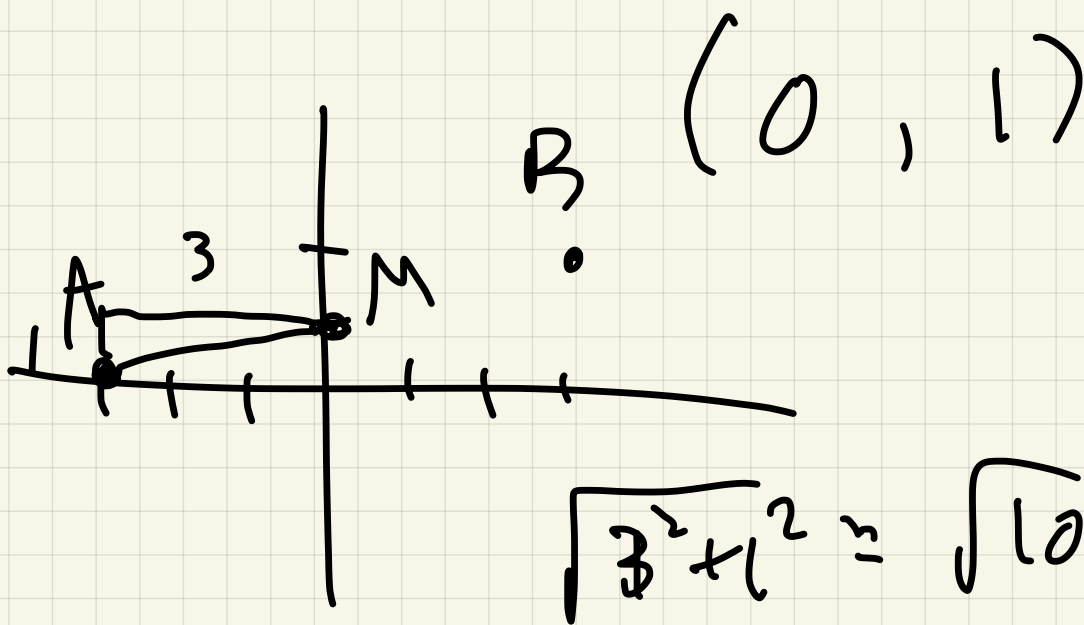
$$(-\infty, 2) \cup [4, \infty)$$

5

$$A = (-3, 0)$$

$$B = (3, 2)$$

$$M = \left(-\frac{3+3}{2}, \frac{0+2}{2} \right) =$$



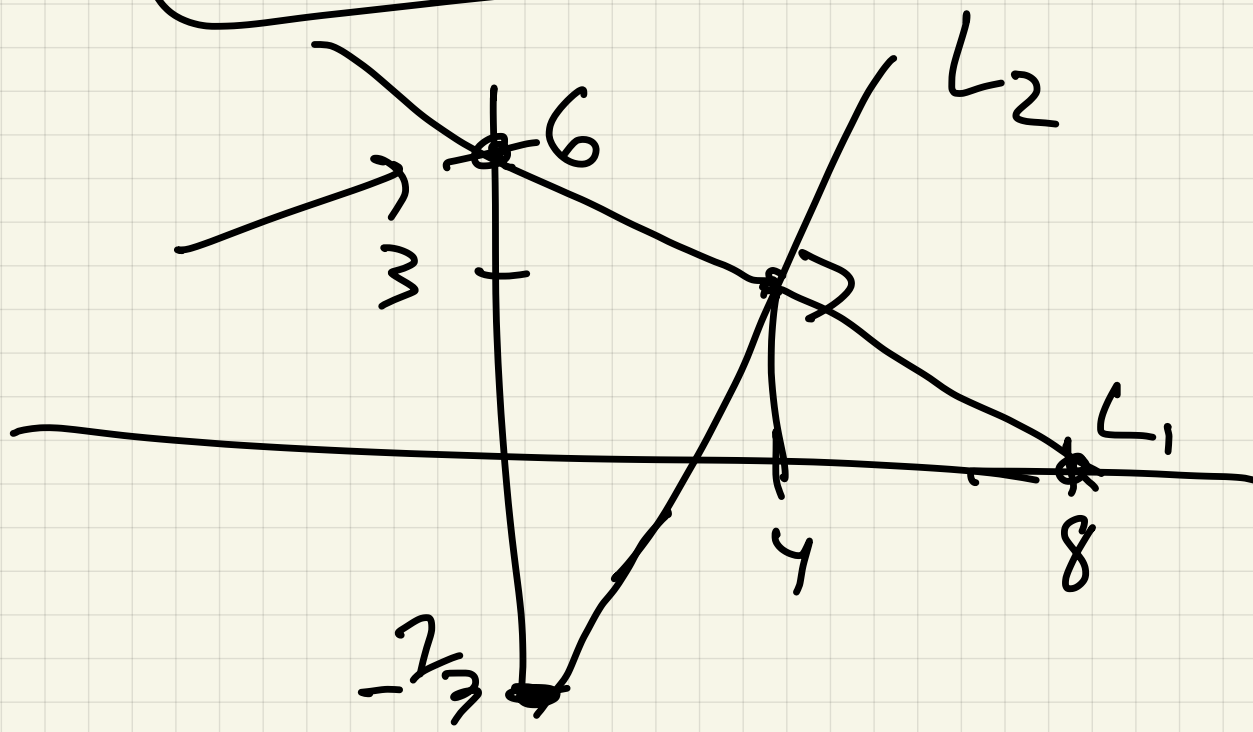
$$(x-0)^2 + (y-1)^2 = (\sqrt{10})^2$$

$$x^2 + (y-1)^2 = 10 \quad \leftarrow$$

$x \leftrightarrow -x$ same

y -axis symm

Quiz 11



$$① \quad m_1 = \frac{\Delta y}{\Delta x} = \frac{-3}{4}$$

$$② \quad y = -3/4 x + 6$$

$$③ \quad m_2 = \frac{-1}{m_1} = \frac{4}{3}$$

$$④ \quad \text{Equ } L_2:$$

$$y - 3 = \frac{4}{3}(x - 4)$$

$$y = \frac{4}{3}x \left[-\frac{16}{3} + 3 \right]$$

⑤

$$-\frac{16}{3} + 3 = -\frac{7}{3} = y\text{-int}$$

2.2 Functions: $f: \mathbb{R} \rightarrow \mathbb{R}$

Domains, evaluate

Ex 1

$$f(x) = x^2 - 3$$

$$\text{Domain} = (-\infty, \infty)$$

all reals $\mathbb{R}$

Evaluate:

$$(a) \quad f(0) = 0^2 - 3 = -3 \quad \checkmark$$

$$(b) \quad f(10) = 10^2 - 3 = 100 - 3 = 97$$

$$\begin{aligned} (c) \quad f(\underline{x+5}) &= (x+5)^2 - 3 \\ &= x^2 + 10x + 25 - 3 \\ &= x^2 + 10x + 22 \end{aligned}$$

(d) Calc:

$$\frac{f(4+h) - f(4)}{h} =$$

$$\frac{((4+h)^2 - 3) - (4^2 - 3)}{h} =$$

$$\frac{16 + (4h + 4h) + h^2 - 3 - 16 + 3}{h} =$$

$$\frac{8h + h^2}{h} = \frac{8 + h}{1}$$

$$\frac{h(8+h)}{h} = 8+h, h \neq 0$$

Skip 2.3 X

Section 2.4

Basic functions

(A) linear functions:

$$y = f(x) = mx + b$$

graph