Math 1450 - Calculus 1

Announcements:

* Scheduled Help Desk hours end today, <u>but</u> we will have some special hours next week.

Will send an email over the weekend with the hours.   * Course Evaluations!

* 4.8 (Parametric Equations) is not on the final

* Final Exam:
    Wednesday, Dec 10,   8pm - 10pm
          Weaster Auditorium

Today: (I will be late, but the
Review!   other professors will be there.)

Office Hours
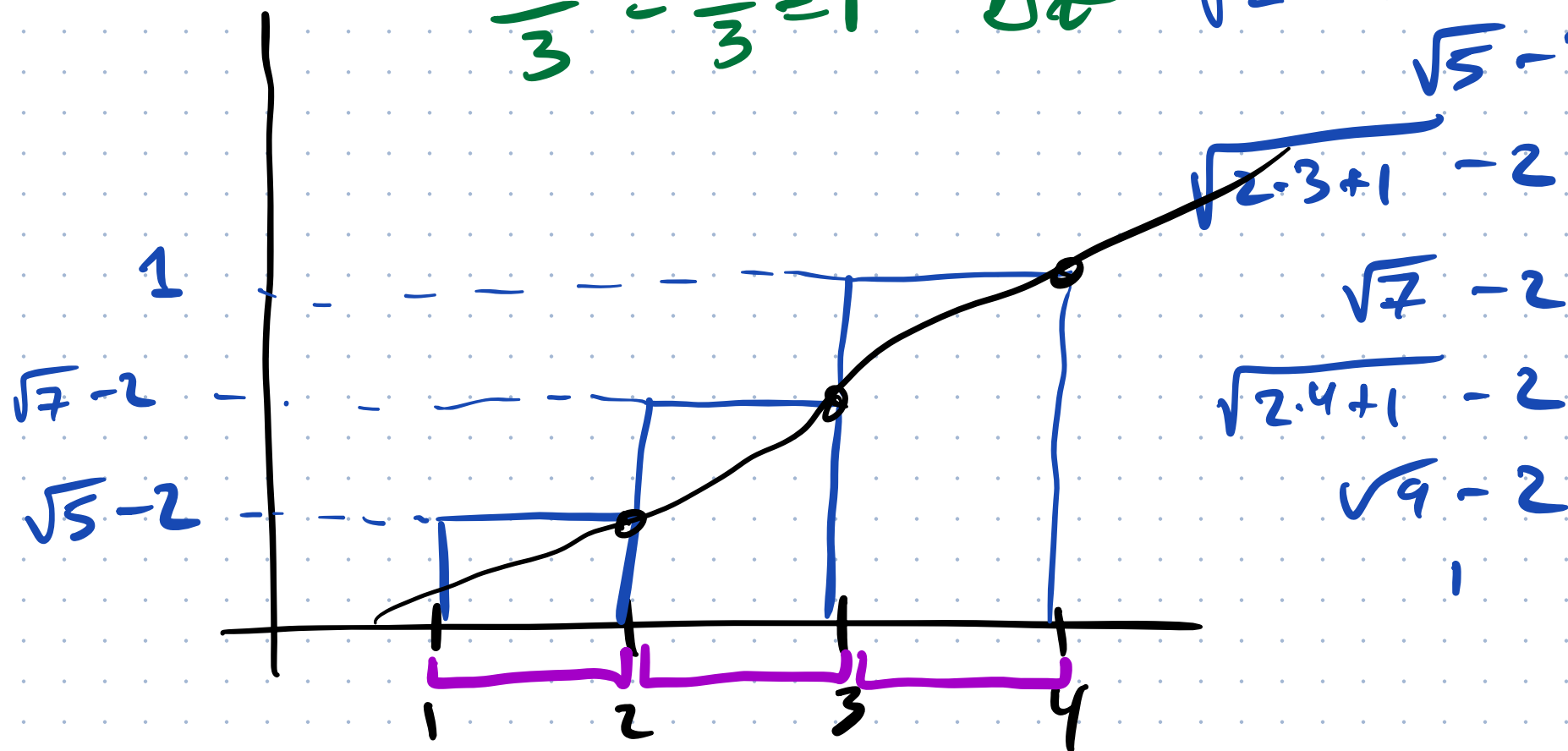Mondays, 12-1

Wednesdays, 2-3

+ Help Desk! 12-1

12) right sum $\qquad \sqrt{2x+1} - 2$

$x=1$ and $x=4$ using 3 rectangles

$$\frac{4-1}{3} = \frac{3}{3} = 1 \qquad \Delta t \qquad \sqrt{2\cdot2+1} - 2$$

$$\sqrt{5} - 2$$

$$\sqrt{2\cdot3+1} - 2$$

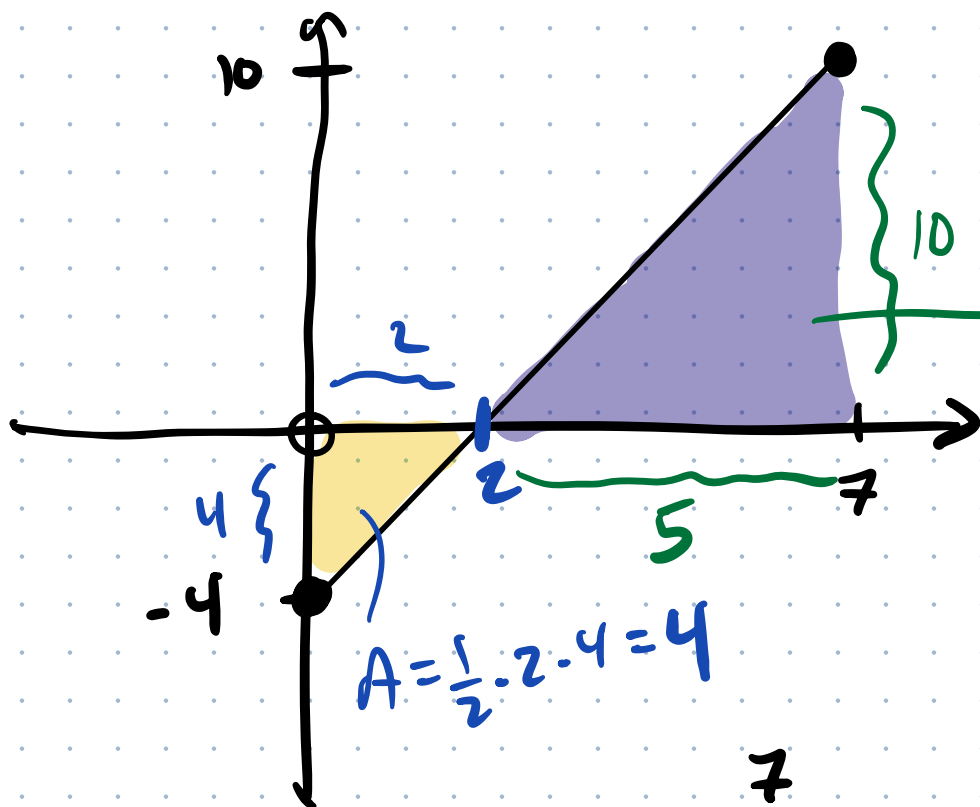$$\sqrt{7} - 2$$

$$\sqrt{2\cdot4+1} - 2$$

$$\sqrt{9} - 2$$

$$1$$

1

$\sqrt{7}-2$

$\sqrt{5}-2$

1 2 3 4

$$1 \cdot \left(\sqrt{5} - 2 + \sqrt{7} - 2 + 1 \right) = \boxed{\sqrt{5} + \sqrt{7} - 3}$$

10) $\displaystyle\int_0^7 (2x-4)\,dx$

use geometric area formulas

$2x-4=0$
$\Rightarrow x=2$

$A=\frac{1}{2}\cdot 5\cdot 10$
$=25$

$A=\frac{1}{2}\cdot 2\cdot 4=4$

$25-4 = \boxed{21}$

$\displaystyle\int_0^7 |2x-4|\,dx = 25+4 = \boxed{29}$

13 area between $y = x + 2$ and $y = -x^3$
between $x = 1$ and $x = 2$
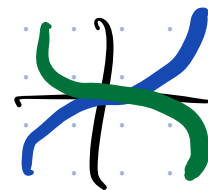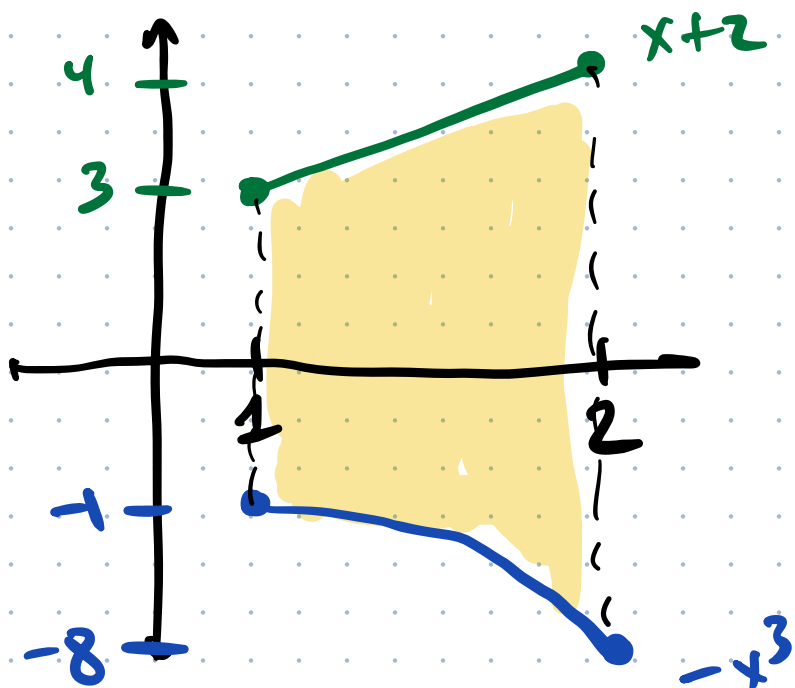
area between =

$$\int (\text{top}) - (\text{bottom})$$

$$\int_{1}^{2} (x+2) - (-x^3) \, dx$$

$$\int_{1}^{2} (x + 2 + x^3) \, dx$$
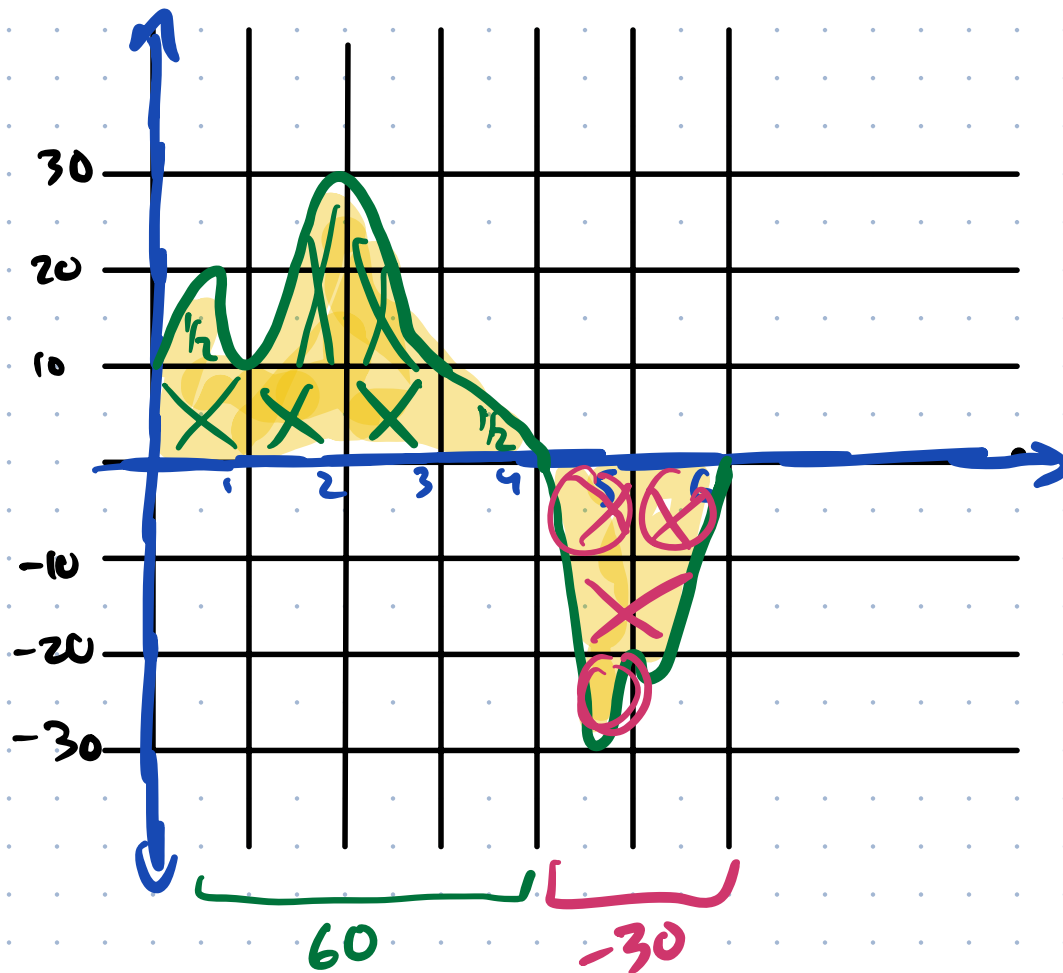
$F(x) = \dfrac{x^2}{2} + 2x + \dfrac{x^4}{4}$

$F'(x) = \dfrac{2x}{2} + 2 + \dfrac{4x^3}{4}$

$= 10 - \dfrac{11}{4}$

$= \dfrac{29}{4}$

$F(2) - F(1)$
$= (2 + 4 + 4) - \left(\dfrac{1}{2} + 2 + \dfrac{1}{4}\right)$ ✓
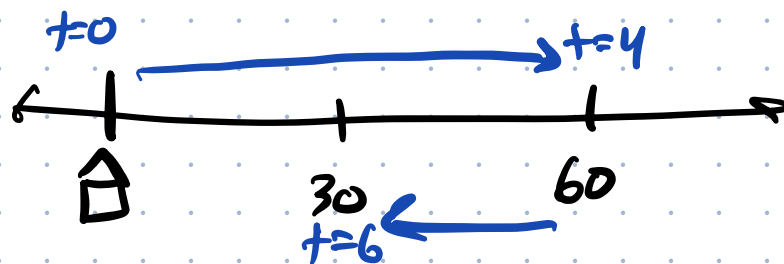
$\bullet = v(t)$

$$\int_0^6 v(t)\,dt$$

$= 60 - 30$

$= 30$

at the end of 6 hours you are 30 kms from home

60   -30

area of rectangle = 10

t=0   →t=4

30 ←   60
t=6

$$\frac{1}{b-a} \int_a^b f(t)\,dt$$