Math 34A Winter 2020
Old Midterm 1 #2

No calculators

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Excellence Bonus /1

Score /16

Put answers in the boxes provided. **Show high quality work** for **all answers**. Points may be awarded for this.

TA: ☐ Garo   ☐ Sam   ☐ Trevor   **Section Time:** ☐ 8am   ☐ 6pm
☐ 5pm   ☐ 7pm

1. [/2] Solve for x in the equation $\dfrac{a}{5} = \dfrac{3x + a}{x + 2}$.

$x =$

2. [/2] Put

$$\frac{5}{a - 4} + \frac{3}{a + 4}$$

over a common denominator, multiply out, and simplify.

Simplified version:

3. [/2] Substitute $x = 2t - 3$ into $x(x+5)$. Simplify the result as much as possible.

Simplified version:

4. [/2] Solve for x and y in the simultaneous equations

$$2x + y = p \qquad x - y = 5.$$

Your answers will involve p only.

$x =$

$y =$

5. [/4] Marie left Santa Barbara at 4am driving at 42 mph along a route that is 300 miles long to San Francisco. Jason left San Francisco at the same time driving along the same route at 58 mph.
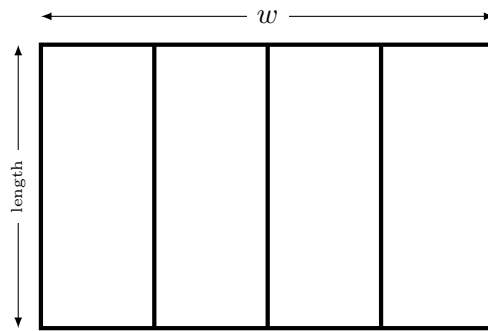
(a) What time do they meet?

They meet at [   ] am.

(b) How far from the midpoint of the route are they when they meet?

They are [   ] miles from the midpoint.

Draw diagram here. ***Briefly*** explain what you did.

6. [/4] A farmer wants to make a rectangular field with a total area of 400 square meters. It is surrounded by a fence.

It is divided into 4 equal areas as shown. The width of the field is w meters.

(a) Express the length of the field in terms of w.

$$\text{length} = \boxed{} \text{ meters}$$

(b) Express the total number of meters of fence needed in terms of w.

$$\text{total amount of fence} = \boxed{} \text{ meters}$$