Math 34A Winter 2020
Old Midterm 1 #1

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 $\dfrac{2}{k} - \dfrac{3}{x+k} = 0$.

$x =$

2. [/2] Multiply out and simplify $(5a + 3b)\left(4a^{-1} - 2b^{-1}\right)$. Check your answer.

Simplified version:

3. [/2] Substitute $x = kt + p$ into

$$x^2 - 2px + 7$$

Simplify the result as much as possible. Write the result of this simplification here:

Simplified version:

4. [/2] Solve for u and v in the simultaneous equations

$$2u + v = p + 1 \qquad v = u + 3p$$

Your answers will involve p only.

$u =$

$v =$

5. [/4] Marie started driving from Stockton towards Isla Vista at noon at a speed of 50 mph. At 1pm Jason started driving from Isla Vista towards Stockton at 100 mph. Jason and Marie met at 3pm. Meanwhile a bad guy follows Marie. He leaves Stockton at 2pm and drives along the same route at 90 mph.

How many miles from Isla Vista was the bad guy when Jason and Marie met?

miles

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

6. [/4] A rectangular box has four sides and a bottom but no top. The volume is 7. The bottom is square and the length of each side is u. Draw a labelled diagram here:

(a) Express the height of the box in terms of u.

Height = $\boxed{}$

(b) Express the total area of the cardboard making up the box in terms of u.

Area = $\boxed{}$