For this exam, the highest three sections count toward your grade (correlation, simple regression, multiple regression, multiple choice).

A social psychologist is examining whether length of court trials predicts length of time for juries to come to a decision.

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| Trial | Length of court trial (weeks) | Length of decision time (hours) |
| 1 | 5 | 8 |
| 2 | 20 | 12 |
| 3 | 8 | 6 |
| 4 | 2 | 4 |
| 5 | 1 | 1 |
| 6 | 3 | 5 |
| 7 | 4 | 7 |
| 8 | 6 | 9 |
| 9 | 4 | 2 |
| 10 | 16 | 10 |

a.What is the regression equation?   
b. Predict the hours of deliberation (decision time) for a jury where the trial lasted for 10 weeks.  
c. Make a graph.  
d. Figure if length of court trial significantly predicts decision time by listing the six hypothesis testing steps, using p<.05 significance level.

e. List a measure of effect size.

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| Regression equation:  y = 3.25 + .48X |
| Hours of deliberation:  Y = 3.25 + .48\*(10) = 8.05 |
| Include your graph: |
| Step 1:  X and Y are scale – yes, ratio  Normal – don’t know N < 30  Homoscedasticity – yes  Random selection – could potentially, random assign – no. |
| Step 2:  R: length of trial predicts decision time b /= 0  N: length of trial does not predict decision time b = 0 |
| Step 3:    y = 3.25 + .48X  beta =  > lm.beta(output)  length.trial  0.8149447 |
| Step 4:  qt(.05/2, 8, lower.tail = F)  + and – 2.31 |
| Step 5:  3.98 |
| Step 6:  Reject |
| Effect size:  .66 |

A developmental psychologist studied eight children on their age at first walking in months and their first grade teachers' ratings of athletic ability on a 9-point scale.

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| Child | Age Walking | Athletic Rating |
| A | 12 | 5 |
| B | 10 | 4 |
| C | 10 | 6 |
| D | 16 | 7 |
| E | 12 | 2 |
| F | 11 | 2 |
| G | 13 | 3 |
| H | 14 | 4 |

1. Make a scatter diagram of the scores.
2. Describe in words the general pattern of association, if any.
3. Determine whether the correlation is statistically significant using the .05 significance level and a two-tailed test by listing the hypothesis testing steps.

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| Include your graph: |
| Pattern of association:  Positive correlation |
| Step 1:  X and Y are scale – yes at least interval  Normal – don’t know N < 30  Randomly selected – no, random assignment – no  Homoscedasticity – ok / iffy |
| Step 2:  R: age of walking and athletic rating are correlated r = /0  N: age of walking and athletic rating are not correlated r = 0 |
| Step 3:    r = .34  df = 6 |
| Step 4:  qt(.05/2, 6, lower.tail = F)  + and – 2.45 |
| Step 5:  .88 |
| Step 6:  Fail to reject |

We wanted to examine why students (and faculty!) procrastinate during finals week. We used previous GPA, motivation, and current course grade to predict procrastination core.

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| GPA | Motivation | Grade | Procrastinate |
| 2.50 | 6.92 | 2.48 | 3.38 |
| 2.23 | 7.57 | 2.77 | 6.06 |
| 3.91 | 7.97 | 2.44 | 7.54 |
| 2.29 | 7.50 | 2.45 | 3.75 |
| 2.89 | 5.74 | 2.55 | 6.96 |
| 1.82 | 7.91 | 2.46 | 4.74 |
| 2.25 | 5.95 | 2.49 | 6.90 |
| 1.73 | 6.29 | 2.27 | 2.42 |
| 2.84 | 8.62 | 2.26 | 3.17 |
| 2.14 | 7.17 | 2.55 | 6.17 |
| 4.10 | 7.21 | 2.21 | 6.31 |
| 2.27 | 7.36 | 2.36 | 4.25 |
| 2.15 | 4.12 | 2.24 | 6.80 |
| 1.73 | 7.54 | 2.59 | 4.09 |
| 2.30 | 7.05 | 2.47 | 4.57 |
| 3.05 | 6.77 | 2.42 | 5.89 |
| 2.38 | 6.66 | 2.80 | 6.79 |
| 3.94 | 7.07 | 2.32 | 8.60 |
| 2.46 | 6.30 | 2.46 | 5.49 |
| 2.58 | 6.65 | 2.53 | 4.68 |

1. What is the regression equation?
2. Make a graph.
3. Using the *p* < .05, figure out if any of these variables predict procrastination.
4. Include the beta values and indicate which variable has the strongest predictive value.
5. List a measure of effect size.

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| Regression equation:  Y = -5.77 + 1.88 (GPA) – 0.83 (motivation) + 4.92 (grade) |
| Include your graph: |
| Step 1:  Xs and Y are scale – yes, at least interval  Normal – don’t know, N < 30  Randomly selected – no, randomly assigned – no  Homoscedasticity – yes |
| Step 2:  R: GPA/motivation/grade predict procrastination bs = / 0  N: GPA/motivation/grade do not predict procrastination bs = 0 |
| Step 3:    > lm.beta(output)  GPA motivation grade  0.8030872 -0.4882518 0.4732034 |
| Step 4:  qt(.05/2, 16, lower.tail = F)  + and – 2.12 |
| Step 5:  Gpa = 5.12  Motivation = -3.28  Grade = 3.05 |
| Step 6:  All are significant, reject the null for all of them. |
| Beta values:  > lm.beta(output)  GPA motivation grade  0.8030872 -0.4882518 0.4732034  Which one is best?  GPA |
| Effect size:  R2 = .67 |