HW 9 - Math 10

1. Does the home team have an advantage in NBA basketball games? In a study of 75 games, the visiting team points were compared to the home team points. Design and conduct a hypothesis test with a significance level of 5%

were compared to the home team points. De	-			-			
(a) (DESIGN) State your Hypothesis	(e) (DATA) Conduct the test and circle your decision						
		Visiting	Home	1			
	sample mean	95.47	101.31				
	sample std dev	12.91	12.72				
	sample size	75	75				
(b) (DESIGN) State Significance Level of the	Reported p-values		two tail	lower tail	upper tail		
test and explain Type I error.	F-test for variances		0.899				
	pooled variance t-test		0.006	0.003	0.997		
	unequal variance t-test		0.006	0.003	0.997		
	matched pairs t-	test	0.000	0.000	1.000		
(c) (DESIGN) Determine the statistical model (test statistic) Explain your reasoning.	Correct p-va	ilue					
	Reject Ho Fail to Reject Ho						
	(f) (CONCLUSION) State your overall conclusion in language that is clear, relates to the original problem and is consistent with your decision.						
(d) (DESIGN) Determine decision rule (p-value method)							

2. Do directed reading activities in the classroom help elementary school students improve aspects of their reading ability? A treatment class of 21 third-grade students participated in these activities for eight weeks, and a control class of 23 third-graders followed the same curriculum without the activities. After the eight-week period, students in both classes took a Degree of Reading Power (DRP) test which measures the aspects of reading ability that the treatment is designed to improve. At the 5% level of significance, can you conclude that directed reading activities improved DRP scores?

(a) (DESIGN) State your Hypothesis	(e) (DATA) Conduct the test and circle your decision						
		Treatment	Control				
	sample mean	51.48	41.52				
	sample std dev	11.01	17.15				
	sample size	21.00	23.00				
	Sumple Size	21.00	20.00				
(b) (DESIGN) State Significance Level of the	Reported p-values		two tail	lower tail	upper tail		
test and explain Type I error.	F-test for variances pooled variance t-test unequal variance t-test matched pairs t-test		0.049				
			0.029	0.985	0.015		
			0.034	0.983	0.017		
			n/a	n/a	n/a		
(test statistic) Explain your reasoning.	Reject Ho Fail to Reject Ho						
	(f) (CONCLUSION) State your overall conclusion in						
	language that is clear, relates to the original						
	problem and i						
(d) (DESIGN) Determine decision rule (pvalue method)							