31
31

3. *[8 pts]* The mean age of the 50 employees at Superstar is 38.2 years. Five new employees are hired, with a mean age of 20.4 years. What is the average age of all employees now, to the nearest tenth? Show clear work, but you need not explain.

$$\frac{50(38.2) + 5(20.4)}{55} = 36.6$$

4. *[15 pts - 5 each]* Create a list of five scores, from 0 to 100 inclusive, for which the following conditions hold. If not possible, explain why.

(a) The median is 80 and the mode is 30.

30 30 80 (above 80) ____

(b) The mean is 80 and the mode is 30.

Impossible - the total must be 400
with two 30's, the remaining
3 scores must total 340 - too high

(c) The median is 80 and will change by fewer than 10 points if a sixth score of 0 is included, but will change by more than 10 points if the sixth score is 100 instead.

60+ 80 100 100 ____

5. *[8 pts]* Demonstrate a "count and balance" approach in solving this problem: *Ellen earned 78 out of 100, 85 out of 100, and 76 out of 100 on her music assignments. If she wants to get an 80% in the course, how mnay points must she earn on the 150-pt final exam?*

Dfict: 2+4 = 6
Surplus: 5
1 pt down

80% of 150 = 120
+1
121