

Practice Problems Ch 8-9-10

= Initially got wrong

1. B
2. B
3. B
4. D
5. A
6. A
7. B
8. C (higher Young's modulus means less strain)
9. D
10. C
11. B
12. A
13. A
14. B
15. Net force and torque must be 0
 1. 1068.2
 2. 709.43
17. 8.46 m
18. $f_s = F_W$, where F_W is the normal force of the wall on the ladder
This can be found by setting the bottom of the ladder as the pivot point and making sure the torques cancel out $F_W = 622$
Normal force of floor on ladder: $F_N = 874 + 400$ (has to cancel out the weight of the ladder and the man)
$$f_s = \mu F_N \rightarrow \mu = \frac{f_s}{F_N} = 0.49$$
19. C
20. Left is 370 N, right is 130 N
23. A
26. $\frac{F}{A} = Y\left(\frac{\Delta L}{L}\right) \rightarrow m \frac{g}{A} = Y\left(\frac{\Delta L}{L}\right) \rightarrow m = \frac{YA\Delta L}{Lg} = 11.54 \approx 12 \text{ kg}$
31. A
32. C
37. D

38. A

50. 1. 200 N

2. 102

62. B

65. D (0)

67. A

76. E

105. A