Outdoor Pursuits Program
PEOL 341-Introduction to Lead Climbing
Worksheet

Name (please print): .....

Multiple Choice Circle the letter which best answers the question. One pt. per question. (11 pt.)

1. According to statistics compiled by John Dill on accidents in Yosemite climbing from 1970 through 1986, most victims were:
   a) novices b) intermediate climbers c) experienced climbers

2. Also according to Dill, at least __% of the climbing fatalities were easily preventable:
   a) 30% b) 50% c) 80% d) 95%

3. Dill states that 8 climbers died and 6 were critically injured in leader fall accidents. The major cause of these incidents was:
   a) failure by the leader to place enough protection
   b) belayer error
   c) anchor failure
   d) pulling of the protection
   e) both a and d

4. Craig Luebben, in his article NUTS! Part Two states that toprope anchors can be subjected to loads of _____ lbs. or more:
   a) 250 lb. b) 500 lb. c) 800 lb.

5. Luebben also states that anchors subject to leader falls can be subjected to loads of _____ lbs. or more:
   a) 800 lb. b) 1500 lb. c) 2000 lb. d) 3000 lb.

6. A kilo Newton is a:
   a) large cookie preferred by climbers from countries on the metric system
   b) metric unit of force, equivalent to approximately 175 lb. of force
   c) metric unit of force, equivalent to approximately 225 lb. of force
   d) metric unit of force, equivalent to approximately 250 lb. of force

7. The energy of a lead fall held statically by the belayer is dissipated largely by:
   a) the belay anchor b) individual pieces of protection c) the climbing rope

8. Single rope samples subject to the drop test must survive __ falls before the rope is considered for approval by the UIAA:
   a) 2 b) 3 c) 5 d) 7

9. Impact force during the drop test must not exceed __ kN:
   a) 8 b) 10 c) 12

10. Everything else being equal, which produces the greatest impact force?
    a) a 200 ft. lead fall on 100' of rope
    b) a 100' lead fall on 50' of rope
    c) an 8' lead fall on 4' of rope
    d) none of the above. The impact force is the same in each case.

11. As a climbing rope receives repeated falls it loses elasticity:
    a) true b) false

12. Carabiners can and do fail. Research shows that carabiners are more likely to fail while sport climbing vs. traditional climbing:
    a) true b) false

13. Research also reveals that IN EVERY CASE of documented carabiner failure the upper carabiner on a quick draw is the one to fail.
    a) true b) false

Section B - Short Answer Questions

1. Fill in the following braking forces. One point per correct response:

Belay Method	Appr.Braking Force
Body belay	___ kN
Figure of eight in rappel mode	___ kN
Slot devices (ATC, Sticht plate, etc.)	___ kN
Müenter hitch	___ kN
Grigri	___ kN

2. What is the fall factor? Define it in precise terms: (3 pts.) .....

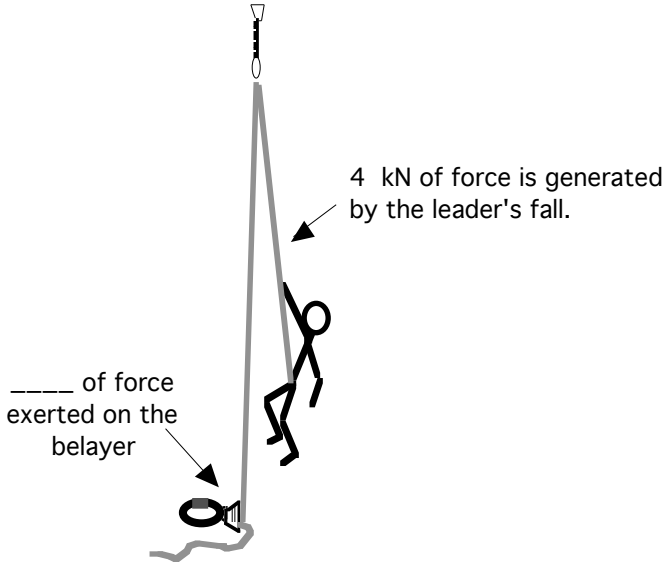
3. What is the fall factor in the following situations (2 pts.):
   a) a 40' fall with 20' of rope payed out by the belayer: the fall-factor is _____.
   b) a 5' fall with 3' of rope payed out by the belayer: the fall-factor is _____.

4. Distinguish between the following types of belays:
   a) static belay: (2 pts.) .....
   b) dynamic belay: (2 pts.) .....

5. Over the years the "golden rules" of leading have changed to accommodate advances in materials and equipment design. The first rule was ***the leader must not fall***. This rule made sense considering that climbing ropes were initially made from hemp and could easily break during a fall by the leader. In response to the inelastic ropes of the early 1900's, the Sierra Club introduced the dynamic belay (1930's), and the golden rule became ***the rope must run***. What is today's "golden rule" of leading? ..... (1 pt.)

   Why is today's golden rule appropriate? (2 pt.) .....

6. How much force (in kN) is exerted on the belayer in the following diagram: __ kN. (2 pts.)
   Why? (3 pts.) .....
   .....
   .....

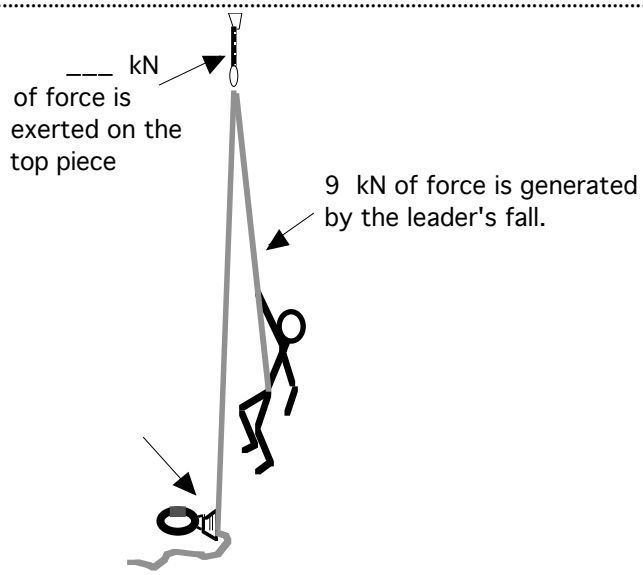


How Much Force is Exerted on the Belayer?

7. In the following diagram _____ kN of force is exerted on the top piece of protection. (5 pts.)

   Will this fall be held dynamically or statically? _____ (2 pts.)
   Why? (3 pts.) .....
   .....

   .....



How Much Force is Exerted on the Top Piece?