

```

1 class quark:
2     def __init__(self):
3         self.top = self.top()
4         self.bottom = self.bottom()
5         self.charm = self.charm()
6         self.strange = self.strange()
7         self.up = self.up()
8         self.down = self.down()
9
10    class top:
11        def __init__(self):
12            self.leaves = True
13
14        def g(self):
15            return 7 / 8 * 4 * 3
16
17        def T(self):
18            return 30 * 1000
19
20    class bottom:
21        def __init__(self):
22            self.leaves = True
23
24        def g(self):
25            return 7 / 8 * 4 * 3
26
27        def T(self):
28            return 1 * 1000 # 1 GeV
29
30    class charm:
31        def __init__(self):
32            self.leaves = True
33
34        def g(self):
35            return 7 / 8 * 4 * 3
36
37        def T(self):
38            return 200
39
40    class strange:
41        def __init__(self):
42            self.leaves = True
43
44        def g(self):
45            return 7 / 8 * 4 * 3
46
47        def T(self):
48            return 200
49
50    class up:
51        def __init__(self):
52            self.leaves = True
53
54        def g(self):
55            return 7 / 8 * 4 * 3
56
57        def T(self):

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58         return 200
59
60     class down:
61         def __init__(self):
62             self.leaves = True
63
64         def g(self):
65             return 7 / 8 * 4 * 3
66
67         def T(self):
68             return 200
69
70
71     class gluon:
72         def __init__(self):
73             self.leaves = True
74
75         def g(self):
76             return 8 * 2
77
78         def T(self):
79             return 200
80
81
82     class boson:
83         def __init__(self):
84             self.W = self.W()
85             self.Z = self.Z()
86             self.h = self.h()
87
88     class W:
89         def __init__(self):
90             self.leaves = True
91
92         def g(self):
93             return 3 * 2
94
95         def T(self):
96             return 15 * 1000
97
98     class Z:
99         def __init__(self):
100             self.leaves = True
101
102         def g(self):
103             return 3
104
105         def T(self):
106             return 15 * 1000
107
108     class h:
109         def __init__(self):
110             self.leaves = True
111
112         def g(self):
113             return 1
114

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115         def T(self):
116             return 15 * 1000
117
118
119 class X:
120     def __init__(self):
121         self.leaves = True
122
123     def g(self):
124         return 4
125
126     def T(self):
127         return 100 * 1000
128
129
130 class pion:
131     def __init__(self):
132         self.pi_pm = self.pi_pm()
133         self.pi_0 = self.pi_0()
134
135     class pi_pm:
136         def __init__(self):
137             pass
138
139         def g(self):
140             return 2
141
142         def T_join(self):
143             return 200
144
145         def T_leave(self):
146             return 50
147
148     class pi_0:
149         def __init__(self):
150             pass
151
152         def g(self):
153             return 2
154
155         def T_join(self):
156             return 200
157
158         def T_leave(self):
159             return 50
160
161
162 class lepton:
163     def __init__(self):
164         self.e = self.e()
165         self.muon = self.muon()
166         self.tau = self.tau()
167
168     class e:
169         def __init__(self):
170             self.leaves = True
171

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172         def g(self):
173             return 7 / 8 * 4
174
175         def T(self):
176             return 0.25
177
178     class muon:
179         def __init__(self):
180             self.leaves = True
181
182         def g(self):
183             return 7 / 8 * 4
184
185         def T(self):
186             return 50
187
188     class tau:
189         def __init__(self):
190             self.leaves = True
191
192         def g(self):
193             return 7 / 8 * 4
194
195         def T(self):
196             return 200
197
198
199     class photon:
200         def __init__(self):
201             pass
202
203         def g(self):
204             return 2
205
206         def T(self):
207             pass
208
209
210     class neutrino:
211         def __init__(self):
212             pass
213
214         def g(self):
215             return 7 / 8 * 6 * (4 / 11) ** (4 / 3)
216
217         def g_s(self):
218             return 7 / 8 * 6 * (4 / 11)
219
220         def T(self):
221             pass
222

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