**Game Development Exam Question**

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Q1.

(a)

1. Vector from Character to Target = (-2, 3, -6)
2. Distance from Character to Target = 7
3. Character.transform.forward = (-2/7, 10/7, 25/7)
4. (-2, 3, -6) \* (-2, 10, 25) = -116 -116 < 0 Rogue is not facing target}
5. 7 < 80, Rogue is not facing target Attack will be unsuccessful
6. Direction of the projectile: (2/7, 3/7, -6/7)
7. Initial velocity: s = u\*t

(b)

(i) s = u\*t, v = u + a\*t, F = m\*a

(ii) velocity += acceleration \* Time.deltaTime;

transform.position += velocity \* Time.deltaTime;

(iii) acceleration += 9.8 \* Vector3.down;

Acceleration -= k \* velocity;