SPH3U7- Projectile Motion Quiz (2) Name:\_\_\_\_\_\_\_\_\_\_\_\_ /12

1. Two projectiles are launched from ground level at the **same angle** above the horizontal, and both return to ground level. Projectile A has a launch speed that **is twice** that of projectile B. Assuming that air resistance is absent, sketch the trajectories of both projectiles. If your drawings are to be accurate, what should be the ratio of the maximum heights in your drawings and what should be the ratio of the ranges(use the calculation section to figure this out)? [ 3 marks]

Sketch:

Calculations:

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1. The path of a golf ball is shown from the point A just after it starts, through the maximum height at point C to the point D just before it lands. At which point is the ball’s velocity vector changing most rapidly?



A) A

B) B

C) C

D) D

E) It is changing at the same rate at all the above points.

1. This question is about projectile motion.

 A ball is kicked at an angle to the horizontal. The diagram below shows the position of the ball every 0.50 s.



 The acceleration of free fall is *g* = 10 m s–2. Air resistance may be neglected.

(a) Using the diagram determine, for the ball

(i) the horizontal component of the initial velocity.

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(1)

(ii) the vertical component of the initial velocity.

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(2)

4. A diver springs from a board that is three metres above the water. At the instant she contacts the water her speed is 8.90 m/s and her body makes an angle of 75.0° with respect to the horizontal surface of the water. Determine her initial velocity, both magnitude and direction.

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