

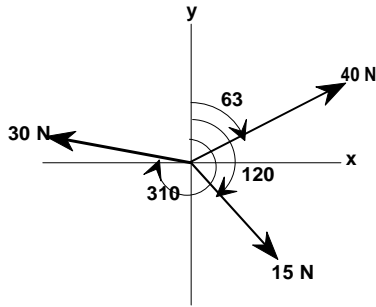
بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ



جامعة الملك سعود
كلية العلوم
قسم الفيزياء والفلك

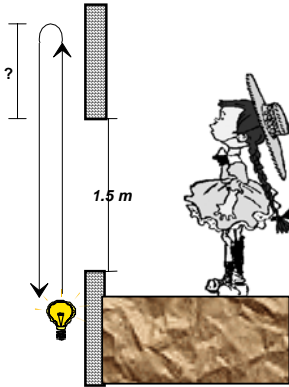
تمارين الفصل الرابع لمقرر ١٠٣ فيزياء الفصل الدراسي
د. عبدالله محمد الزبير

السؤال الأول:



ANS: $|R|=39.4\text{ N}$, $\theta=49.5^\circ$

السؤال الثاني:



1.5 m ()

1 sec

ANS: $?=1.54\text{ cm}$

السؤال الثالث:

2 m/s^2

50 m

()

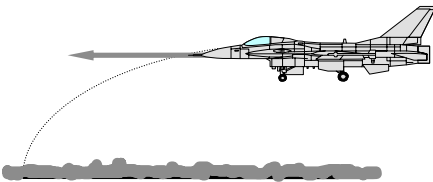
()

() :

3 m/s

Ans: (a) 17.4 s (b) 293 m

السؤال الرابع:



500 km/h

1500 m

()

()

()

ANS: (a) 17.5 s (b) 2431 m (c) $|v|=220.5\text{ m/s}$, $\theta=-50^\circ$

السؤال الخامس:

100 m

()

(): 0.075 s

ANS: (1) 2.76 cm (2) $|v|= 1333.3 \text{ m/s}$, $\theta=-0.03^\circ$

السؤال السادس:

() : 1 m/s

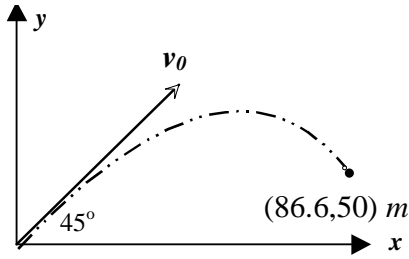
1 m

() () .

() .

ANS: (a) 0.45 s (b) 0.45 m (c) $|v|=4.52 \text{ m/s}$, $\theta=-77.2^\circ$

السؤال السابع:



: $y = 50 \text{ m}$ $x = 86.6 \text{ m}$

v_0

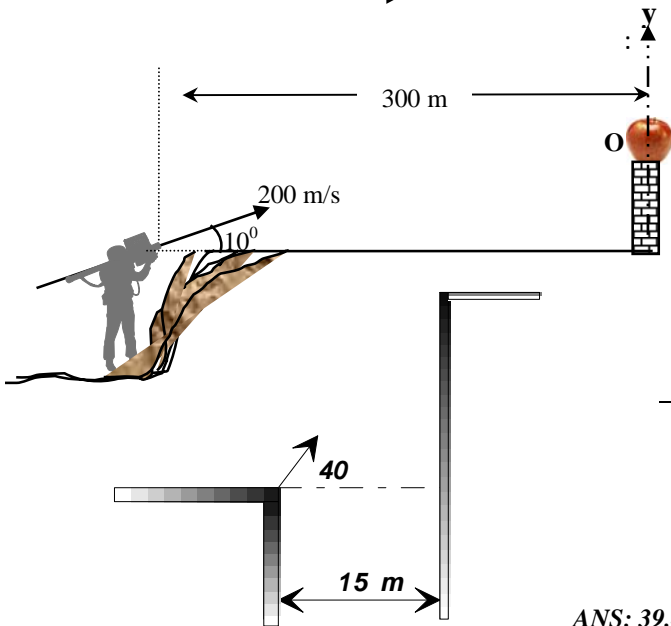
45°

()

v_0

()

السؤال الثامن:



O

(y)

()

()

()

السؤال التاسع:

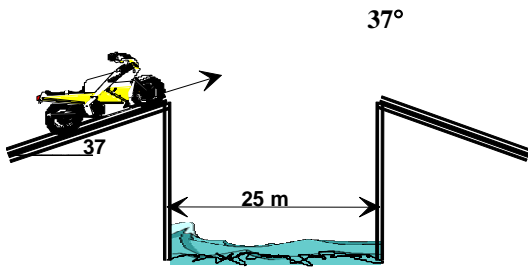
40°

6 m/s

15 m

ANS: 39.4 m below its original level

السؤال العاشر:



25 m

:

()

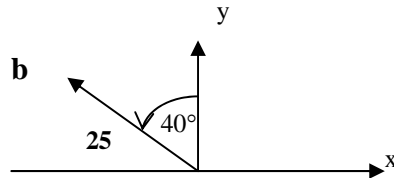
()

ANS: (a) 15.96 m/s (b) 1.96 s

WRITE YOUR ANSWER ON THE ATTACHED SHEET

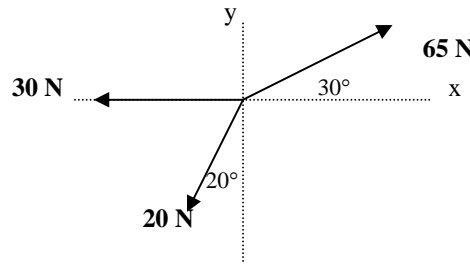
1. If $\vec{a} = 28\hat{i} + 11\hat{j}$ and \vec{b} is as shown, what is the magnitude of the sum of these two vectors?

- a. 45
- b. 35
- c. 39
- d. 32
- e. 64



2. The three forces shown act on a particle. What is the magnitude of the resultant of these three forces?

- a. 27 N
- b. 33 N
- c. 36 N
- d. 24 N
- e. 105 N



3. An object is released from rest at an unknown height h above the ground. One second later a second object is released from rest at the same height. When the first object strikes the ground, the second is 20 m above the ground. What is the initial height h ?

- a. 32 m
- b. 45 m
- c. 40 m
- d. 36 m
- e. 54 m

4. If $\vec{A} = 12\hat{i} - 16\hat{j}$ and $\vec{B} = -24\hat{i} + 10\hat{j}$, what is the magnitude of the vector $\vec{C} = 2\vec{A} - \vec{B}$?

- a. 42
- b. 22
- c. 64
- d. 90
- e. 13

5. If $A = 12i - 16j$ and $B = -24i + 10j$, what is the direction of the vector $C = 2A - B$?

- a. -49
- b. -41
- c. -90
- d. +49
- e. 221

6. A projectile is thrown from the top of a building with an initial velocity of 30 m/s in the horizontal direction. If the top of the building is 30 m above the ground, how fast will the projectile be moving just before it strikes the ground?

- a. 35 m/s
- b. 39 m/s
- c. 31 m/s
- d. 43 m/s
- e. 54 m/s

7. A stone is thrown from the top of a building with an initial velocity of 20 m/s downward. The top of the building is 60 m above the ground. How much time elapses between the instant of release and the instant of impact with the ground?

- a. 2.0 s
- b. 6.1 s
- c. 3.5 s
- d. 1.6 s
- e. 1.0 s

8. The initial speed of a cannon ball is 200 m/s. If the ball is to strike a target that is at a horizontal distance of 3.0 km from the cannon, what is the minimum time of flight for the ball?

- a. 16 s b. 21 s c. 24 s d. 14 s e. 19 s

9. A ball thrown vertically from ground level is caught 3.0 s later by a person on a balcony which is 14 m above the ground. Determine the initial speed of the ball.

- a. 19 m/s b. 4.7 m/s c. 10 m/s d. 34 m/s e. 17 m/s

10. A racecar moving with a constant speed of 60 m/s completes one lap around a circular track in 50 s. What is the magnitude of the acceleration of the racecar?

- a. 8.8 m/s^2 b. 7.5 m/s^2 c. 9.4 m/s^2 d. 6.3 m/s^2 e. 5.3 m/s^2



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KING SAUD UNIVERSITY
PHYSICS & ASTRONOMY DEPARTMENT
103-Phys (Dr.ABDALLAH M. AZZEER)



WRITE YOUR ANSWER ON THE ATTACHED SHEET

MCQ CH.4

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..... :

ANSWER SHEET

1.
2.
3.
4.
5.
6.
7.
8.
9.
10.