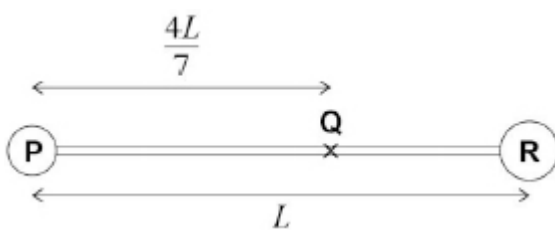


Mark schemes

1. B $\sqrt{2}v$ [1]

2. D $\frac{mv^2}{2}$ [1]

3. D Only total momentum is conserved. [1]

4. C  [1]

5. B 190 m [1]

6. D moving up with a decreasing velocity. [1]

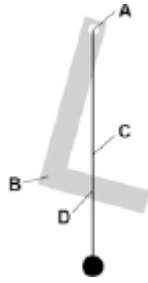
7. C 80 m s^{-1} [1]

8. C The acceleration of X is the same as that of Y. [1]

9. C The terminal speed of Y is greater than that of Z. [1]

10. D 9.6 N [1]

11. C



[1]

12. C

G F

[1]

13. C

250 J

[1]

14. A

the acceleration of the car increases.

[1]

15. A

[1]

16. C

[1]

17. D

[1]

18. C

[1]

19. B

[1]

20. D

[1]

21. A

[1]

22. B

[1]

23. B

[1]

24. D

[1]

25. D [1]
26. A [1]
27. A [1]
28. D [1]
29. A [1]
30. A [1]
31. C [1]
32. D [1]
33. D [1]
34. C [1]
35. B [1]