How Far for A2.3

|  | Regular one step or two step problems: |
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| 11.2 m | 1. A Pirate Ship accelerates uniformly from $1.80 \mathrm{~m} / \mathrm{s}$ to $5.60 \mathrm{~m} / \mathrm{s}$ with an acceleration of $1.25 \mathrm{~m} / \mathrm{s} / \mathrm{s}$. What was its displacement? |
| $8.28 \mathrm{~m} / \mathrm{s}$ | 2. A lemur going $3.45 \mathrm{~m} / \mathrm{s}$ accelerates at $1.52 \mathrm{~m} / \mathrm{s} / \mathrm{s}$ for 3.18 s . What is its final velocity? |
| $-8.85 \mathrm{~m} / \mathrm{s} / \mathrm{s}$ | 3. A giant lizard stops in 5.85 m in 1.15 s . What was its acceleration? |
| 12.4 s | 4. A tuna going $2.35 \mathrm{~m} / \mathrm{s}$ accelerates at $0.208 \mathrm{~m} / \mathrm{s} / \mathrm{s}$ covering a distance of 45.0 m . What time did it take? |
| 7.27 m | 5. A lemming speeds up from rest to $5.19 \mathrm{~m} / \mathrm{s}$ in 2.80 s . What is its displacement during this time? |
| 21.6 m/s | 6. An accident scene detective knows that a car with a deceleration of $-7.14 \mathrm{~m} / \mathrm{s} / \mathrm{s}$ was brought to rest in 32.8 m . What was the initial velocity? |
| $-1.22 \mathrm{~m} / \mathrm{s} / \mathrm{s}$ | 7. What is the acceleration of an ATV that goes from $12.0 \mathrm{~m} / \mathrm{s}$ to $7.50 \mathrm{~m} / \mathrm{s}$ in 3.68 s ? |
| 41.9 m | 8. A XC runner accelerates uniformly for 8.20 s at $0.540 \mathrm{~m} / \mathrm{s} / \mathrm{s}$ having a final velocity of $7.32 \mathrm{~m} / \mathrm{s}$. What is their displacement during this time? |
| 22.8 m/s | 9. A racecar accelerates at $5.13 \mathrm{~m} / \mathrm{s} / \mathrm{s}$ for 3.35 s covering a distance of 105 m . What was its initial velocity? |
| $21.9 \mathrm{~m} / \mathrm{s}$ | 10. A car avoiding an accident is brought to rest over a distance of 56.0 m in 5.12 s . What was its initial velocity? |
| $-4690 \mathrm{~m} / \mathrm{s} / \mathrm{s}$ | 11. A baseball going $38.0 \mathrm{~m} / \mathrm{s}$ decelerates to rest over a distance of 0.154 m . What was its deceleration? (It's big) |
| $-2.01 \mathrm{~m} / \mathrm{s} / \mathrm{s}$ | 12. A car goes from $27.2 \mathrm{~m} / \mathrm{s}$ to $14.7 \mathrm{~m} / \mathrm{s}$ in 6.23 s . What is its acceleration? |
| 458 m | 13. A train going $45.0 \mathrm{~m} / \mathrm{s}$ decelerates at $-2.17 \mathrm{~m} / \mathrm{s} / \mathrm{s}$ for 17.9 s . What is its displacement during this time? |
| $4.36 \mathrm{~m} / \mathrm{s}$ | 14. A hamster going $2.7 \mathrm{~m} / \mathrm{s}$ accelerates uniformly for 6.52 s , covering a distance of 23.0 m . What was its final velocity? (it's riding a hamster scooter) |
| 2.33 s | 15. A car is going $15.0 \mathrm{~m} / \mathrm{s}$ after having decelerated at $-6.25 \mathrm{~m} / \mathrm{s} / \mathrm{s}$ over a distance of 52.0 m . What time did it take? |
| -25.1 m/s | 16. A hot pocket accelerating at $-9.81 \mathrm{~m} / \mathrm{s} / \mathrm{s}$ from rest falls downward -32.1 m . What is the final velocity? |
| $18.2 \mathrm{~m} / \mathrm{s}$ | 17. A car accelerates uniformly for 8.70 s with a final velocity of $31.5 \mathrm{~m} / \mathrm{s}$ over a distance of 216 m . What was its initial velocity? |
| 2.39 s | 18. A car that can brake at $-8.92 \mathrm{~m} / \mathrm{s} / \mathrm{s}$ will take what time to decelerate from $33.1 \mathrm{~m} / \mathrm{s}$ to $11.8 \mathrm{~m} / \mathrm{s}$ ? |
| 81.6 m | 19. A rollercoaster car going $8.60 \mathrm{~m} / \mathrm{s}$ decelerates at $-0.215 \mathrm{~m} / \mathrm{s} / \mathrm{s}$ for 11.0 s . What was its displacement during this time? |
| 47.1 s | 20. A space probe is going $615 \mathrm{~m} / \mathrm{s}$ after having decelerated at $-0.147 \mathrm{~m} / \mathrm{s} / \mathrm{s}$ over a distance of 29,100 m . What time did it take? |
|  | Two-Part Kinematics: |
| 39.2 m | 21. A dragon accelerates from $1.13 \mathrm{~m} / \mathrm{s}$ to $3.60 \mathrm{~m} / \mathrm{s}$ in 4.13 seconds. Over what distance could it accelerate from rest to $6.85 \mathrm{~m} / \mathrm{s}$ if it had the same acceleration? |
| 4.98 s | 22. A car accelerates uniformly from rest, covering 65.0 m in 5.62 seconds. What time would it take the same car to go from $8.90 \mathrm{~m} / \mathrm{s}$ to $29.4 \mathrm{~m} / \mathrm{s}$ if it had the same acceleration? |
| $7.73 \mathrm{~m} / \mathrm{s}$ | 23. A runner covers 21.5 m accelerating uniformly from rest to $9.94 \mathrm{~m} / \mathrm{s}$. What was their speed when they had covered only 13.0 m ? |
| 2.84 s | 24. A train decelerates from $35.0 \mathrm{~m} / \mathrm{s}$ to $22.0 \mathrm{~m} / \mathrm{s}$ in 42.0 seconds. What time did it take it to cover 98.0 meters from the beginning? |
| 17.5 s | 25. A car accelerates from rest to $23.0 \mathrm{~m} / \mathrm{s}$ over a distance of 231 m . What time would it take it to accelerate from rest to $20.0 \mathrm{~m} / \mathrm{s}$ if it accelerated at the same rate? |

