# Math Word Games

7th & 8th Grade Questions

1. If a hot air balloon rises 8 feet per second with two tanks shooting flames into the envelope, but only rises 4 feet per second with one burner lit, how high will the balloon be after 10 seconds if the second burner goes out after 6 seconds?

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2. A hot air balloon is tied to the ground. If the hot air balloon can rise 8 feet per second with only the pilot, but slower by 1 foot per second for each additional passenger inside the basket, how many feet in the air will the balloon be after 30 seconds with the pilot and three passengers inside the basket?

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3. If a hot air balloon rises 6 feet a second for 30 seconds, floats in the air for two minutes, and then descends back to earth at 3 feet a second, how long has the balloon been in the air?

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4. *Diameter* is the measurement across the middle of a circle. *Radius* is the distance from the center of a circle to its edge. If the radius of the hot air balloon's envelope is 30 feet at its largest point, how wide is the diameter?

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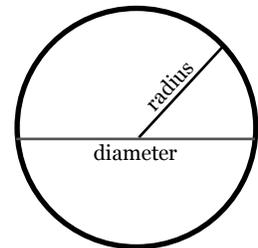
5. If the diameter of a hot air balloon is six times larger at the widest part of an envelope than at the bottom part of the envelope, and if the diameter of the envelope is 60 feet across at its widest part, what is the radius of the balloon at the bottom of the envelope? (Hint: first figure out what the diameter of the balloon is at the bottom of the envelope before figuring out its radius.)

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ANSWERS

1. 64 feet— After 6 seconds, the balloon will be 48 feet high (8 x 6 = 48). During the last 4 seconds, the balloon will rise 16 feet (4 x 4 = 16). 48 feet + 16 feet = 64 feet

2. Ha! Trick question. If the balloon is tied to the ground, it won't go up! But if the balloon was set free, the balloon would rise 5 feet per second with the pilot and three passengers. After 30 seconds, they would be at a height of 150 feet. (5 x 30 = 150)

3. 210 seconds — Ascent time = 30 seconds. Ascent height = 6 feet per second x 30 seconds = 180 feet of height. Float time = 120 seconds. Decent time is 180 feet ÷ 3 feet per second = 60 seconds. Thus, 30 second ascent + 120 seconds of float time + 60 second decent = total flight time of 210 seconds (or 3 minutes and 30 seconds)

4. 60 feet wide (30 feet x 2 = 60 feet)

5. 5 feet wide — The 60 foot diameter should be divided by six. (60 ÷ 6 = 10 feet diameter at the bottom of the envelope.) The radius is ½ the length of the diameter. Thus, at the bottom of the balloon, the diameter is 10 feet wide and the radius is 5 feet wide.