

Math 6 Assignment 12 February 17, 2018
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Name: \_\_\_\_\_

1. Solve the following equations for  $x$

(a)  $5x + 16 = 26$

(c)  $14x + 8 = 15$

(b)  $2x + 9 = 3$

(d)  $512x + 1024 = 1024$

2. A turtle and a rabbit are having a 500-metre race. Answer the following questions:

(a) Assume the turtle is crawling to the finishing line at  $v_t = 0.5\text{m/s}$ , and the rabbit is hopping towards the finishing line at  $v_r = 5\text{m/s}$ . Who wins? By how long?

(b) Assume the same conditions as in (a). What if the winner takes a 90-minute nap? Who wins? By how long?

(c) Assume the same conditions as in (a). What is the longest nap the winner in (a) can take, and still win?

3. Train stations Vancouver and Tacoma are about 275km apart. Train A heads from Vancouver at  $v_A = 50\text{km/h}$  heading to Tacoma, and Train B heads from Tacoma to Vancouver at  $v_B = 75\text{km/h}$ .

(Hint: answer the time as the time after the first train leaves, and the position as the distance from either station)

(a) If the two trains leave at the same time, when and where will they meet?

(b) If Train A leaves one hour before train B, when and where will they meet?

(c) If Train B leaves 30 minutes before Train A, when and where will they meet.