MA111: Contemporary mathematics

Jack Schmidt

University of Kentucky

September 14, 2011

Schedule:

- Participation quiz on BB should be done today (and take like 30 seconds)
- HW 10.1 is due Friday, Sep 16th, 2011.
- HW 10.2 will be due Monday, Sep 19th, 2011.
- Exam 1 is Monday, Oct 3rd, during class.

Today we will look at percentages.

Which is the better deal? All prices are for the same product.

- (A) \$100 original price. 10% off sale. 6% tax.
- (B) \$ 90 original price. No sale. 7% tax.
- (C) \$110 original price. 20% off sale. 6% tax.
- (D) \$100 original price. \$10 off coupon. 6% tax.
- (E) \$150 original price. 30% off sale. 6% tax.

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(A) Deduct Johnson Center payment after taxes

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(A) Deduct Johnson Center payment after taxes

- (B) Deduct Johnson Center payment before taxes
 - What if it costs \$100, you make \$100, and you pay 25% tax?
 - (A) means you get \$75 after taxes, and spend \$100 on the gym. \$25 in the hole
 - (B) means you get \$100 before taxes, spend it all on the gym, and then are taxed on \$0.
 \$0, just broke even

Does it matter how much you make?

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- What if it costs \$100, you make \$1000, and you pay 25% tax?
- (A) means you get \$750 after taxes, and have \$650 after paying for the gym
- (B) means you get \$900 before taxes, and so have \$675 after paying taxes

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- What if it costs \$100, you make \$1000, and you pay 25% tax?
- (A) means you get \$750 after taxes, and have \$650 after paying for the gym
- (B) means you get \$900 before taxes, and so have \$675 after paying taxes
- You are still \$25 better off with before taxes. Is it a coincidence?

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- What is a similarly good tip on \$40?

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- What is a similarly good tip on \$10?
- What is a similarly good tip on \$30?

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 - (Z) the list price, no tax, no sale,
 - (A) the tax before the sale, or
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- (B) means \$90 with the sale, and 90 + 9 = 99 with the tax

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- It is a little strange that (A) and (Z) are different
- (B) means \$90 with the sale, and 90 + 9 = 99 with the tax
- Is it a coincidence that (A) and (B) agree?

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- 15% of 20 is the same as (0.15)(20) = 3.00
- 15% off means you still pay 100% 15% = 85%
- So \$20 with 15% off is both:
 \$20 \$3 = \$17 and
 (\$20)(0.85) = \$17

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- So \$20 with 15% off is both:
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 (\$20)(0.85) = \$17
- 6% tax means total is multiplied by 100% + 6% = 106% = 1.06

Homework

- Calculations: Percentage decrease, percentage increase
- Participation (15%): There is a quiz on blackboard, under Assignments. Should do it today. Due by Thursday.
- Read section 10.1 of the textbook.
- Online homework (30%):
 - HW 10.1 is due Friday. Might be a little hard. 9 questions.
 - HW 10.2 is due Monday.