

Hospitality Mathematics Test-Out Study Guide

Directions: *There are 110 answers to be calculated for this practice exam spread over 9 pages. For easy reference, place all answers in the appropriate blank for each question, and label your answers properly where appropriate. Follow directions for rounding for the various sections. When this practice test is complete, check your answers against those provided on the last page. In order to exempt the entire Hospitality Mathematics course, you must score on the actual **1½-hour** test-out exam given at Phase I Orientation a minimum of 82% (lowest B grade) or 90/110, which means you may miss no more than 20 points. You will be permitted to use a calculator during the exam, so be sure to bring one with you along with pencils and any necessary scratch paper. We cannot provide these items for you. Also, remember to bring this completed Test-Out Study Guide which will serve as your admittance to the actual test-out exam.*

Applied Math

Sunday brunch is very popular at your restaurant. On average you serve 450 guests in 5 hours. The menu offers eggs and omelets cooked to order, eggs benedict, bacon, sausage, and ham, bagels with toppings, fresh fruit, Danish and sweet rolls.

1. On average, every guest eats 3 eggs. How many eggs will you use on Sunday? _____
2. How many dozen eggs will you use? _____
3. Eggs are ordered by the case. There are 30 dozen per case. How many cases should you order? [Round up to nearest whole number.] _____
4. On average, every guest eats 2 slices of bacon. Bacon contains 20 slices per pound. How many pounds of bacon should you order? [Round up to nearest whole number.] _____
5. On average, each guest eats 1 sausage. There are 8 sausages per pound. How many pounds of sausage should you order? [Round up to nearest whole number.] _____

Percents, Decimals, and Fractions [Round percents to one decimal place.]

- | | |
|-----------------------------|----------------------------|
| 6. $5/8 =$ _____ (percent) | 7. $5/8 =$ _____ (decimal) |
| 8. 40% = _____ (decimal) | 9. 40% = _____ (fraction) |
| 10. .333 = _____ (fraction) | 11. .333 = _____ (percent) |

A 425-lb side of beef is received. The loin weighs 50 lbs, and the brisket weighs 35 lbs.
[Round percents to one decimal place.]

12. What percent of the side is the loin? _____

13. What percent of the side is the brisket? _____

14. The Toque Ceremony for students and their families is being planned. The projected cost of the hors d'oeuvres and beverages is \$1,500. An 8% discount will be allotted if the bill is paid in advance. What will be the final cost of the food and beverages?

15. Chef Cutter purchased measuring pitchers, cups, ladles, and spoons to use in Hospitality Math class at an initial cost of \$95. If he pays within 10 days of delivery, he will be given a 2% discount. How much will the final bill be?

16. If an 85-lb. beef round is roasted and 11 lbs. are lost through shrinkage, what percent of the round is still available?

Ratios

17. How much water is needed to bake $\frac{1}{2}$ gal of rice using a ratio of 2 to 1 liquid to rice?

18. How much water should be used to cook 3 pts of barley using a ratio of 4 to 1 water to barley?

Portion Scale – in Ounces [not pounds]

19. Determine the cost of a portion of chuck roast if the dial on the portion scale points to the second mark beyond the 3, and the cost of 1 pound of cooked chuck roast is \$2.59.

20. Determine the cost of a portion of pork loin if the dial pointer on the portion scale points to the third mark beyond the 3, and the cost of 1 pound of cooked pork loin is \$5.25.

Weights and Measures

21. 1 T = _____ tsp
22. 1 C = _____ Fl oz
23. 1 pt = _____ oz
24. 1 qt = _____ oz
25. 1 gal = _____ oz
26. 1 lb = _____ oz
27. 1 lb = _____ fl C
28. 1 qt = _____ pt
29. 1 gal = _____ fl pt
30. 1 gal = _____ qt
31. 1 oz = _____ g
32. 1 L = _____ oz
33. 1 kg = _____ lb
34. 1 lb = _____ g

35. At a party you are catering, you will serve 2 fl oz of cream with each cup of coffee. How much cream will you need for 120 cups of coffee?

36. How many 5 fl oz servings can you get from a 750-mL bottle of wine?

37. How many grams of baking powder can you measure from a 2-lb container?

Recipe Scaling

38. Your recipe for béchamel sauce yields 4 quarts. For a dinner party you will need 18 servings of 2 fl oz each. What scaling factor should you use to adjust the recipe?

39. Your recipe for marinated eggplant filling yields 2 lbs. For a banquet you are catering you need to prepare 60 sandwiches with 5 oz of filling in each. What scaling factor should you use to adjust this recipe? [3 decimals]

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40. Your recipe for cream of tomato soup yields 3 gallons. For a luncheon you need to serve 50 one-cup portions. What scaling factor should you use to adjust the recipe? _____

Recipe Costing

For the following recipe, calculate the extension cost for each ingredient and then the remaining information needed. [Do not round \$ amounts until #49 and #50.]

Brown Sugar Cookies

Approximate Yield
14 dozen = 168 cookies

<i>Ingredients</i>	<i>Amount</i>	<i>Market Price</i>	<i>Extension Cost</i>
Brown Sugar	3 lb 2 oz	.38 per pound	41. _____
Shortening	2 lb 4 oz	.48 per pound	42. _____
Salt	1 oz	.42 per pound	43. _____
Baking Soda	½ oz	.44 per pound	44. _____
Pastry Flour	4 lb 8 oz	.20 per pound	45. _____
Whole eggs	9	.89 per dozen	46. _____
Vanilla	To Taste	1.77 per quart	47. _____
Total Cost			48. _____
Cost per Dozen			49. _____
Cost per Cookie			50. _____

Fill in the blanks to complete the following questions:

Food Cost	Food Cost %	Sales Price
\$2.79	31.4%	51. _____
52. _____	24.9%	\$7.35
\$2.48	53. _____	\$11.95

Recipe Conversion

Convert the following recipe ingredients to the new yields where indicated:

	24 portions, 8 oz each	60 portions, 8 oz each	48 portions, 6 oz each
Butter	12 oz	54.	59.
Onion	8 oz	55.	60.
Mushrooms	1½ lb	56.	61.
Flour	9 oz	57.	62.
White stock	4½ qt	58.	63.

AP, EP, and Yield Percent [Round all percents to one decimal place.]

64. You purchase 30 heads of garlic. Each head weighs 2.5 oz. After cleaning the garlic you have 9 oz. of trim. What is the yield percent?

65. An onion that weighed 14.1 oz when it was purchased yielded 12.75 oz of diced onion. What yield percent was achieved?

66. A lb of limes yielded 6.5 oz of juice. What percent of the limes was juice?

67. You fabricated a 30-lb case of broccoli, and it yielded 17 lbs 6 oz of florets. What yield percent did you achieve?

68. How many EP pounds of pork loin must be ordered when serving 4-oz breaded pork chops to a party of 175 people?

69. An 11-lb pork loin costs \$2.92 per pound. A 10-ounce tenderloin is removed from the loin, and another 1 lb 6 ounces are lost through boning and trimming. How much does a 4-ounce chop cost? Round up to the nearest cent.

70. You purchase 10 bunches of radishes with tops. Each bunch weighs 1 lb 2 oz. After cleaning the radishes the tops and trim weigh 4 lb 3 oz. What is the yield percent?

71. You purchase 6 rutabagas, each weighing 3 lbs. After cleaning you are left with 15 1/3 lbs. of cleaned rutabaga. What is the yield percent for the rutabaga?

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Purchasing and Portioning

VEGETABLES

ITEM	AP UNIT	NUMBER OF MEASURES PER AP UNIT	MEASURE PER AP UNITS	TRIMMED/ CLEANED OUNCE WEIGHT OR COUNT PER AP UNIT	YIELD PERCENT	TRIMMED/ CLEANED OUNCE WEIGHT PER CUP	NUMBER OF TRIMMED/ CLEANED CUPS PER AP UNIT
LETTUCE, ROMAINE, CHOPPED	head	24	ounce	18	75.0%	2.00	9.000

For questions 72 – 74, refer to the chart above.

72. You purchase 6 heads of romaine lettuce. How many 3-ounce portions of chopped romaine lettuce can you get from these 6 heads? _____
73. You plan to serve one-quarter head of romaine lettuce to each guest at a party. How many servings will you get from a case of 15 heads of lettuce? _____
74. If we purchase 16 pounds of romaine lettuce, how many ounces of chopped lettuce can we give to each of 64 people? _____

Food Cost Percentage [Round all percents to one decimal place.]

75. In Caliope’s Cafe a total of \$43,189 worth of food was used last month. They earned revenue of \$99,687. What was their food cost percentage for the month? _____
76. For next month revenue of \$61,484 has been forecasted and a 33.3% food cost percentage is desired. What should the total expenditure of food dollars be for the month to achieve the desired food cost percentage? _____
77. Your competition offers a steak dinner for \$12.95. You are required to spend 75% of your sales income on overhead, operating expenses, and profit. How much can you spend on food and still charge \$12.95 for a steak dinner? _____

Fill in the blanks in the following **Raw Yield Test** form.

Item: Beef Strip Loin (bone in) Regular to Trimmed Strip Loin Steaks

AP weight: 18 lb. Price per lb: \$2.99 Total Cost: **78.** \$ _____

Trim, Salvage, and Waste:

Item	Weight	Value/lb	Total Value (lb x value/lb)
Fat	2 lb 9 oz	\$.07	79. _____
Bone	4 lb 2 oz	\$.24	80. _____
Ground beef	11 oz	\$2.39	81. _____
Cutting loss	2 oz	0	0
Total weight of trim, salvage, and waste: 82. _____		Total value of trim, salvage, and waste: 83. _____	
Total yield of item (steaks): 84. _____			
Net cost of item: 85. _____			
Cost per lb 86. _____			
Percent of increase 87. _____			

88. You are serving cantaloupe at a breakfast function. One hundred and fifty guests are expected, and each will be served 4 ounces of diced cantaloupe. Cantaloupe gives a 58.1% yield when diced. If each melon weighs 2 pounds and each case contains 12 melons, how many cases should be purchased for the breakfast function? _____

89. The wedge salad in your restaurant includes ¼ head of romaine lettuce. You expect 27 patrons to order the wedge salad during lunch service today. If romaine has a yield of 75% and each head weighs 24 ounces as purchased, how many pounds of Romaine lettuce do you need for today's lunch service? _____

90. Your recipe calls for 3¼ pounds of sliced onions. If slicing onions gives an 88.5% yield, how many pounds of onions needs to be ordered for the recipe? _____

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Complete the Daily Production Report below, calculating the percent of sales, number of leftovers (if any), Total Number Sold and Total %. [Round percents to one decimal.]

DAILY PRODUCTION REPORT					
Department: <i>Rôtisseur</i>			Date/Shift	9/8/15	/Lunch
Menu Item	Amount Ordered	Amount Produced	Number Sold	% of Sales	Leftovers
Roast Round of Beef	80	80	80	^{91.}	^{92.}
Roast Loin of Pork	30	30	22	^{93.}	^{94.}
Swiss Steak	44	46	36	^{95.}	^{96.}
TOTAL			^{97.}	^{98.}	*****

Pricing the Menu

99. The raw food cost is \$6.60 and the markup rate is $\frac{5}{8}$. _____

100. The raw food cost is \$3.72 and a 25% food cost is desired. _____

101. The raw food cost is \$1.57 and the 43% food cost is realized. _____

Kitchen Ratios

Using a ratio when one ingredient quantity is known:

	Diced Onion	Diced Carrot	Diced Celery	Total
QUANTITY	6#	^{102.}	^{103.}	^{104.}
PARTS	2	1	1	4

Kitchen Ratios, continued*Using a ratio when the total yield is known:*

	Flour	Fat	Water	Total
QUANTITY	105.	106.	107.	15#
PARTS	3	2	1	6

Working with ratios using percents:

	Diced Onion	Diced Carrot	Diced Celery	Total
QUANTITY	108.	109.	110.	9#
PARTS	50%	25%	25%	100%

1.	1,350 eggs	29.	8 fl pt	57.	22.5 oz	85.	\$51.01
2.	112.5 dozen	30.	4 qt	58.	11.25 qt	86.	\$4.86
3.	4 cases	31.	28.35 grams	59.	18 oz	87.	162.5%
4.	45 lbs	32.	33.8 oz	60.	12 oz	88.	2.7 or 3 whole cases
5.	57 lbs	33.	2.2 lb	61.	2.25 lb	89.	10.125 lbs
6.	62.5%	34.	453.6 grams	62.	13.5 oz	90.	3.67 lbs
7.	.625	35.	240 oz or 30 C	63.	6.75 qt	91.	58%
8.	.4	36.	5 servings	64.	88%	92.	0
9.	$\frac{2}{5}$	37.	907.2 g	65.	90.4%	93.	15.9%
10.	$\frac{333}{1000}$	38.	.28125	66.	40.6%	94.	8
11.	33.3%	39.	9.375	67.	57.9%	95.	26.1%
12.	11.8%	40.	1.042	68.	43.75 lbs	96.	10
13.	8.2%	41.	\$1.1875	69.	\$.89	97.	138
14.	\$1,380	42.	\$1.08	70.	62.8%	98.	100%
15.	\$93.10	43.	\$.02625	71.	85.2%	99.	\$10.56
16.	87.1%	44.	\$.01375	72.	36 portions	100.	\$14.88
17.	1 gal	45.	\$.90	73.	60 servings	101.	\$3.65
18.	12 pts	46.	\$.6675	74.	3 oz	102.	3#
19.	\$.57	47.	---	75.	43.3%	103.	3#
20.	\$1.23	48.	\$3.875	76.	\$20,474.17	104.	12#
21.	3 tsp	49.	\$.28	77.	\$3.24	105.	7.5#
22.	8 fl oz	50.	\$.023	78.	\$53.82	106.	5#
23.	16 oz	51.	\$8.89	79.	\$.18	107.	2.5#
24.	32 oz	52.	\$1.83	80.	\$.99	108.	4.5#
25.	128 oz	53.	20.8%	81.	\$1.64	109.	2.25#
26.	16 oz	54.	30 oz	82.	7.5 lbs	110.	2.25#
27.	2 fl C	55.	20 oz	83.	\$2.81		
28.	2 pt	56.	3.75 lb	84.	10.5 lbs		