

Multiple Choice Questions

1. A cost not relevant to deciding whether to purchase a new machine is:
 - a) The cost of the new machine
 - b) Lower maintenance costs for the new machine
 - c) The cost of the old machine
 - d) Additional training required for operating the new machine

2. A cost incurred in the past that cannot be changed by any future action is:
 - a) Opportunity cost
 - b) Sunk cost
 - c) Relevant cost
 - d) Avoidable cost

3. ABC Company is trying to decide if they should replace an old machine with a new machine. The following data was analyzed. The purchase of a new machine would have what effect on net income?

| | |
|--------------------------------------|-----------|
| Cost savings per year on new machine | \$100,000 |
| New Machine Cost | \$150,000 |
| Revenue from sale of old machine | \$10,000 |
| Book Value of old machine | \$25,000 |

- a) Net decrease of \$15,000
 - b) Net increase of \$15,000
 - c) Net decrease of \$40,000
 - d) Net increase of \$40,000

4. It costs L Company \$14 of variable costs and \$6 of allocated fixed costs to produce an industrial trash can that sells for \$30. A buyer in Mexico offers to purchase 3,000 units at \$18 each. L Company has excess capacity and can handle the additional production. What effect will acceptance of the offer have on net income?
 - a) Decrease \$6,000
 - b) Increase \$6,000
 - c) Increase \$54,000
 - d) Increase \$12,000

5. W Company can make 1,000 toy robots with the following costs:

| | |
|-------------------|----------|
| Direct materials | \$70,000 |
| Direct labor | 26,000 |
| Variable overhead | 15,000 |
| Fixed overhead | 15,000 |

The company can purchase the 1,000 robots externally for \$125,000. The avoidable fixed costs are \$5,000 if the units are purchased externally. What is the cost savings if the company makes the robots?

- a) \$1,000
 - b) \$5,000
 - c) \$10,000
 - d) \$9,000
6. Abel Company produces three versions of baseball bats: wood, aluminum, and hard rubber. A condensed segmented income statement for a recent period follows:

| | Wood | Aluminum | Hard Rubber | Total |
|---------------------|-----------|-----------|-------------|-----------|
| Total Sales | \$500,000 | \$200,000 | \$65,000 | \$765,000 |
| Variable expenses | 325,000 | 140,000 | 58,000 | 523,000 |
| Contribution margin | 175,000 | 60,000 | 7,000 | 242,000 |
| Fixed expenses | 75,000 | 35,000 | 22,000 | 132,000 |
| Net income (loss) | \$100,000 | \$ 25,000 | \$(15,000) | \$110,000 |

Assume none of the fixed expenses for the hard rubber line are avoidable. What will be total net income if the line is dropped?

- a) \$125,000
- b) \$103,000
- c) \$105,000
- d) \$140,000

7. W Company is operating at 75% of its manufacturing capacity of 140,000 product units per year. A customer has offered to buy an additional 20,000 units at \$32 each. The following data are available:

| <u>Costs at 75% Capacity</u> | <u>Per Unit</u> | <u>Total</u> |
|------------------------------|-----------------|------------------|
| Direct materials | \$12.00 | \$1,260,000 |
| Direct labor | 9.00 | 945,000 |
| Overhead applied | <u>15.00</u> | <u>1,575,000</u> |
| Total | \$36.00 | \$3,780,000 |

In producing 20,000 additional units, fixed overhead costs would remain at their current level but incremental variable overhead costs of \$6 per unit would be incurred. What is the effect on income if Wade accepts this order?

- Income will decrease by \$4 per unit.
- Income will increase by \$4 per unit.
- Income will increase by \$5 per unit.
- Income will increase by \$11 per unit.

The next 2 questions refer to the following information:

M Company manufactures a cat food product called Special Export. M Company currently has 10,000 bags of Special Export on hand. The variable production costs per bag are \$1.80 and total fixed costs are \$10,000. The cat food can be sold as it is for \$9.00 per bag or be processed further into Prime Cat Food and Feline Surprise at an additional \$2,000 cost. The additional processing will yield 10,000 bags of Prime Cat Food and 3,000 bags of Feline Surprise, which can be sold for \$8 and \$6 per bag, respectively.

8. The net advantage (incremental income) of processing Special Export further into Prime and Feline Surprise would be:
- \$98,000
 - \$96,000
 - \$8,000
 - \$6,000

9. If Special Export is processed further into Prime Cat Food and Feline Surprise, the total gross profit would be:
- a) \$68,000
 - b) \$78,000
 - c) \$96,000
 - d) \$98,000
10. X Company has already incurred a \$12,000 cost in partially producing its two products. Their selling prices when partially and fully processed are shown in the table below with the additional costs necessary to finish their processing. Based on this information, should any products be processed further?

| <u>Product</u> | <u>Unfinished Selling Price</u> | <u>Finished Selling Price</u> | <u>Further Processing Costs</u> |
|----------------|---------------------------------|-------------------------------|---------------------------------|
| A | \$78 | \$325 | \$168 |
| B | 85 | 600 | 555 |

- a) Both product A and product B should be processed further.
- b) Neither product A nor product B should be processed further.
- c) Only product B should be processed further.
- d) Only product A should be processed further.

Practice Problems

Practice Problem #1

J Company is now making a small part used in one of its products. The unit costs of producing the part internally are:

| | |
|---|----------------|
| Direct materials | \$15.00 |
| Direct labor | 10.00 |
| Variable manufacturing overhead | 2.00 |
| Fixed manufacturing overhead, traceable | 4.00 |
| Fixed manufacturing overhead, allocated | 5.00 |
| Unit product cost | <u>\$36.00</u> |

Depreciation of special equipment represents 75% of the traceable fixed manufacturing overhead cost with supervisory salaries representing the balance. The supervisory salaries could be avoided if production of the part were discontinued. An outside supplier has offered to sell the part to J Company for \$30 each, based on an order of 5,000 parts per year.

Required: Should J Company accept this offer?

Practice Problem #2

T Company makes backpacking tents. It has the capacity to produce 10,000 tents per year and currently is producing and selling 7,000 tents. Normal selling price for a tent is \$470. Unit-level costs are \$100 for direct materials, \$200 for direct labor, and \$25 for other manufacturing costs. Facility-level costs of \$80 are allocated to each tent. T Company has received a special order for 1,500 tents at \$340 each.

Required: How much income will T Company make on the special order?

Practice Problem #3

V Company is trying to decide whether to replace a packing machine that it uses to pack pasta into serving size packages. The current machine requires \$1,000 worth of repairs to be useful. If they purchase a new machine, there is potential to rent it out for \$600 per year. The following information is available:

| | <u>Current Machine</u> | <u>New Machine</u> |
|--------------------------|----------------------------|------------------------|
| Original cost | \$13,000 | \$8,000 |
| Accumulated depreciation | 8,000 | |
| Annual operating costs | 2,000 | 500 |
| Current salvage value | 700 | |

Required: Compute the increase or decrease in total net income over the five-year period if the company chooses to buy the new machine.

Practice Problem #4

C Company has two divisions whose most recent income statements are shown below:

| | <u>Commercial</u> <u>Division</u> | <u>Residential</u> <u>Division</u> |
|--|--------------------------------------|---------------------------------------|
| Unit sales | 10,000 | 2,000 |
| Sales | \$800,000 | \$200,000 |
| Production costs | 350,000 | 120,000 |
| Depreciation expense, equipment | 150,000 | 50,000 |
| Traceable selling and administrative costs | 80,000 | 20,000 |
| Corporate office expenses | <u>25,000</u> | <u>15,000</u> |
| Net Income (Loss) | \$195,000 | (\$5,000) |

Required: Compute the impact on profit if the Residential Division is eliminated.

Practice Problem #5

Y Company has already incurred \$93,000 cost in partially producing its three products. Their selling prices when partially and fully processed are shown in the table below with the additional costs necessary to finish their processing.

| <u>Product</u> | <u>Unfinished</u> <u>Selling Price</u> | <u>Finished</u> <u>Selling Price</u> | <u>Further</u> <u>Processing</u> <u>Costs</u> |
|----------------|---|---|---|
| A | \$31.27 | \$62.37 | \$33.76 |
| B | 42.56 | 96.11 | 49.82 |
| C | 89.01 | 102.72 | 17.29 |

Required: Based on this information, should any products be processed further?

Solutions

- | | |
|-----|---|
| 1. | C |
| 2. | B |
| 3. | C |
| 4. | D |
| 5. | D |
| 6. | B |
| 7. | C |
| 8. | D |
| 9. | A |
| 10. | D |

Solution #1

| | | |
|---|-----------|-----------|
| Direct materials | \$15.00 | |
| Direct labor | 10.00 | |
| Variable manufacturing overhead | 2.00 | |
| Fixed manufacturing overhead, traceable | 1.00 | |
| Purchase price | | \$30.00 |
| Unit product cost | \$28.00 | \$30.00 |
| Units produced | 5,000 | 5,000 |
| Total cost | \$140,000 | \$150,000 |

Difference in favor of making: \$10,000. The depreciation on the equipment and common fixed overhead are not avoidable costs.

Solution #2

| | | |
|---------------------------------------|----------------|---------------|
| Differential revenues 1,500 x \$340 = | 1500*340 | \$510,000 |
| Variable costs: | | |
| Materials | 100*1500 | 150,000 |
| Labor | 200*1500 | 300,000 |
| Other manufacturing costs | <u>25*1500</u> | <u>37,500</u> |
| Differential income (loss) | | 22,500 |

The special order would cause income to increase by \$22,500; based on this information, it should be accepted. Facility level costs are irrelevant.

Solution #3

| | <u>Retain Machine</u> | <u>Purchase Machine</u> | <u>Net Income Increase (Decrease)</u> |
|------------------------------|---------------------------|-----------------------------|---|
| Original cost | | \$8,000 | (\$8,000) |
| Repair costs | 1,000 | | \$1,000 |
| Annual operating costs | 10,000 | 2500 | \$7,500 |
| Current salvage value | | -700 | \$700 |
| Rental Revenue | | -3000 | <u>\$3,000</u> |
| | | | <u>\$4,200</u> |

Management should purchase the new machine.

Solution #4

| | Commercial Division | Residential Division | Company Totals |
|--|------------------------|-------------------------|-------------------|
| Unit sales | 10,000 | | 10,000 |
| Sales | \$800,000 | | 800,000 |
| Production costs | 350,000 | | 350,000 |
| Contribution Margin | 450,000 | | 450,000 |
| Depreciation expense, equipment | 150,000 | 50,000 | 200,000 |
| Traceable selling and administrative costs | 80,000 | | 80,000 |
| Corporate office expenses | <u>25,000</u> | <u>15,000</u> | <u>40,000</u> |
| Net Income (Loss) | \$195,000 | (\$65,000) | 130,000 |

Management should keep the residential division.

Solution #5

| | Product A | Product B | Product C |
|---------------------------|-----------|-----------|-----------|
| Finished selling price | \$62.37 | \$96.11 | \$102.72 |
| Unfinished selling price | 31.27 | 42.56 | 89.01 |
| Incremental selling price | 31.10 | 53.55 | 13.71 |
| Further processing costs | 33.76 | 49.82 | 17.29 |
| Incremental profit (loss) | (2.66) | 3.62 | (3.58) |

Only Product B should be processed further as it has a positive incremental profit.