

WachatIMG55.png — 已编辑

搜索

Quality Company currently makes as many units of widgets as they need. The company replaced its current machinery for widgets on Jan 1, 2019 with the plans of continuing to produce widgets in-house. However, the general manager, David, has received a bid from Widgets Inc who are willing to supply Quality Company's demand of 1,000 units at \$60 apiece. Widgets Inc can start supplying on Jan 1, 2020 and continue supplying for five years, after which Quality Company will no longer need widgets. Widgets Inc can accommodate any fluctuations in Quality Company's demand for widgets at the same price.

The controller for Quality Company has prepared the following pro-forma schedule of expenses (in \$) for producing 1,000 units of widgets for the current year:

Direct materials	26,400.00
Direct manufacturing labour	13,200.00
Variable manufacturing overhead	8,400.00
Depreciation on machine	12,000.00
Product and process engineering	4,800.00
Rent	2,400.00
Allocation of general plant overhead costs	6,000.00
Total costs	73,200.00

The following information is also available:

The machine for widgets has no alternate use and was acquired by Quality Company for \$72,000. The machine has a useful life of 6 years and zero terminal price. The company calculates depreciation on a straight-line basis. The company estimates that it can sell the machine at the end of 2019 for \$24,000.

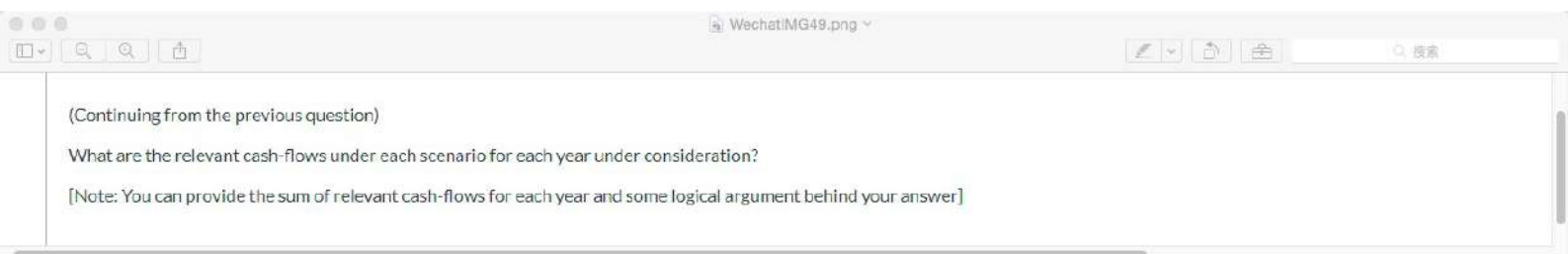
Product and process engineering costs are fixed in the short-run with respect to the number of widgets produced, but the company can eliminate these costs if they stop producing the widget.

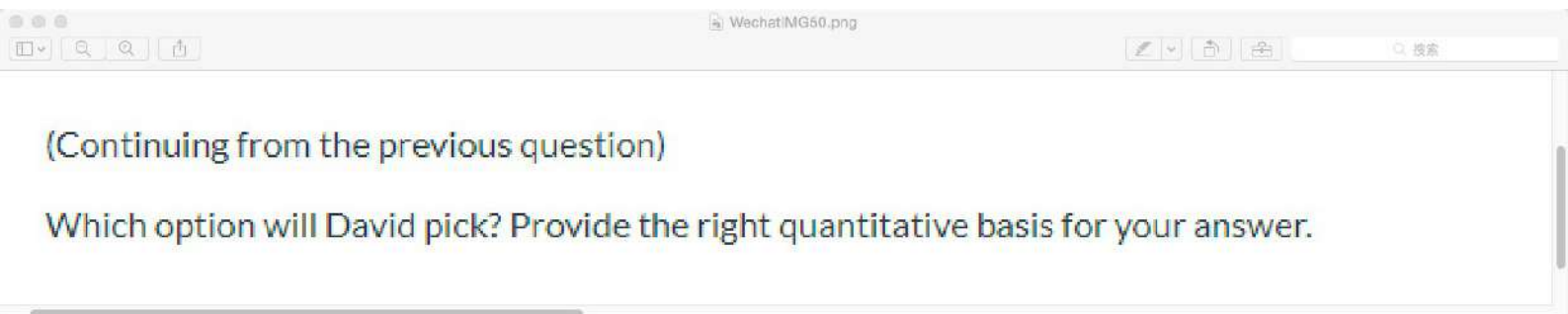
Rent costs are allocated to widgets based on the floor space used for manufacturing the product. If the company stops producing widgets, this floor space will become available for storage and the company will be able to save \$1,200 it currently spends on renting outside storage. General plant overhead costs are allocated to each department based on direct manufacturing labour dollars. These costs will not change.

Quality Company operates with a required rate of return of 11% on all projects.

(Ignore taxes for any decision-making and assume all cash-inflows and outflows occur at the end of a time period)

What quantitative method should David use to make the decision of producing widgets in-house or outsourcing them?







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Question 14

3 pts

Note: The following two questions are also based on information in this question.

The procurement division of Sea Monkeys Inc. purchases and processes salt, water conditioner, and brine shrimp eggs, and packages the correct quantities for sea monkeys into a plain silver packet. The finishing division of Sea Monkeys Inc takes plain silver packets with the mix for sea monkeys – purchased from the procurement division and/or an external supplier – and adds an additional layer of packaging with the company's branding and instructions for customers, and prepares them for shipment. Both divisions are fully autonomous and seek to maximize their own profit.

The procurement division produces and sells 600,000 sea monkey packets per year, its maximum capacity (this is the capacity used for determining the predetermined overhead rate). The per unit costs associated with one silver packet are as follows:

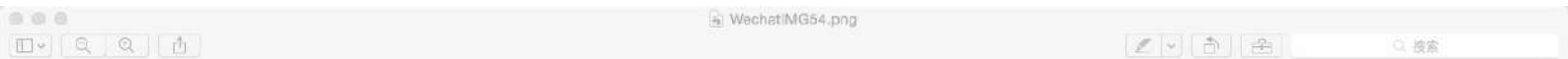
Direct materials	\$2.50
Direct labor	\$1.00
Variable factory overhead	\$0.50
Fixed factory overhead	<u>\$0.75</u>
Total	\$4.75

The finishing division currently purchases all 600,000 sea monkey packets produced per year by the procurement division, as well as 400,000 additional packets from an external supplier – these packets are equivalent to those produced in-house. The procurement division could sell any number of its packets to an external customer at a price of \$5 if it so desired. The external supplier (who would happily supply any number of packets to the finishing division) charges the finishing division \$6.50 per packet.

What is the range of transfer prices such that the procurement and finishing divisions should be mutually willing to transact for the 600,000 packets?

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(Continuing from two questions prior)

Ignore the new information in the previous question. The procurement division is considering expanding its capacity in order to be able to produce an additional 200,000 units. The variable costs associated with these additional 200,000 units would be higher because the procurement division would need to use a second supplier and workers would need to be paid overtime for the additional work. The per unit variable costs for these 200,000 units would be:

Direct materials	\$2.80
Direct labor	\$1.20
Variable factory overhead	<u>\$0.60</u>

In addition, the procurement division would have to rent additional factory space that would cost \$255,000 per year. If procurement provides finishing with 600,000 units, finishing is willing to pay \$5.50 per unit. What is the minimum amount per unit that procurement would be willing to accept to provide finishing with 800,000 units for the year instead?