Joanne Clark estimates that her gutter cleaners will work a total of 1,000 jobs during the year. Each job averages 600 feet of gutter surface and requires 12 direct labor-hours. Clark pays her gutter cleaners $15 per hour, inclusive of taxes and benefits. The following table presents the budgeted overhead costs for 2020:

Variable costs	
Supplies ($6.50 per DLH)	$ 78,000
Fixed costs (to support capacity of 12,000 DLH)	
Indirect labor	25,000
Depreciation	17,000
Other	24,000
Total budgeted costs	$144,000

Required

1. Prepare a direct labor budget in both hours and dollars.
2. Calculate the budgeted overhead allocation rate based on the budgeted quantity of the cost drivers.
3. Calculate the budgeted total cost of all jobs for the year and the budgeted cost of an average 600-foot gutter-cleaning job.
4. Prepare a revenues budget for the year, assuming that Ever Clean charges customers $0.60 per square foot.
5. Calculate the budgeted operating income.
6. What actions can Clark take if sales should decline to 900 jobs annually?

6-29 Budgets for production and direct manufacturing labor. (CMA, adapted) Roletter Company makes and sells artistic frames for pictures of weddings, graduations, and other special events. Bob Anderson, the controller, is responsible for preparing Roletter's master budget and has accumulated the following information for 2020:

2018 should be revised to 2020.

	2018				
	January	February	March	April	May
Estimated sales in units	10,000	14,000	7,000	8,000	8,000
Selling price	$ 54.00	$ 50.50	$ 50.50	$ 50.50	$ 50.50
Direct manufacturing labor-hours per unit	2.0	2.0	1.5	1.5	1.5
Wage per direct manufacturing labor-hour	$ 12.00	$ 12.00	$ 11.00	$ 13.00	$ 13.00

In addition to wages, direct manufacturing labor-related costs include pension contributions of $0.50 per hour, worker's compensation insurance of $0.20 per hour, employee medical insurance of $0.30 per hour, and Social Security taxes. Assume that as of January 1, 2020, the Social Security tax rates are 7.5% for employers and 7.5% for employees. The cost of employee benefits paid by Roletter on its employees is treated as a direct manufacturing labor cost.

Roletter has a labor contract that calls for a wage increase to $13 per hour on April 1, 2020. New labor-saving machinery has been installed and will be fully operational by March 1, 2020. Roletter expects to have 17,500 frames on hand at December 31, 2019, and it has a policy of carrying an end-of-month inventory of 100% of the following month's sales plus 50% of the second following month's sales.

Required

1. Prepare a production budget and a direct manufacturing labor budget for Roletter Company by month and for the first quarter of 2020. You may combine both budgets in one schedule. The direct manufacturing labor budget should include labor-hours and show the details for each labor cost category.
2. What actions has the budget process prompted Roletter's management to take?
3. How might Roletter's managers use the budget developed in requirement 1 to better manage the company?

6-30 Activity-based budgeting. The Jerico store of Jiffy Mart, a chain of small neighborhood convenience stores, is preparing its activity-based budget for January 2021. Jiffy Mart has three product categories: soft drinks (35% of cost of goods sold [COGS]), fresh produce (25% of COGS), and packaged food (40% of COGS). The following table shows the four activities that consume indirect resources at the Jerico store, the cost drivers and their rates, and the cost-driver amount budgeted to be consumed by each activity in January 2021.

Required

1. Prepare an analysis of all manufacturing overhead variances. Use the 4-variance analysis framework illustrated in Exhibit 8-4 (page 315).
2. Prepare journal entries for manufacturing overhead costs and their variances.
3. Describe how individual variable manufacturing overhead items are controlled from day to day.
4. Discuss possible causes of the variable manufacturing overhead variances.

8-29 Overhead variances, service sector. Foodies operates a meal home-delivery service. It has agreements with 20 restaurants to pick up and deliver meals to customers who place orders on the Foodies website. Foodies allocates variable and fixed overhead costs on the basis of delivery time. Foodies owner, Asha Ahuja, obtains the following information for May 2020 overhead costs:

	Actual Results	Static-Budget Amounts
Output units (number of deliveries)	8,600	12,000
Hours per delivery		0.70
Hours of delivery time	5,660	
Variable overhead cost per hour of delivery time		$ 1.75
Variable overhead costs	$11,320	
Fixed overhead costs	$39,600	$33,600

HMN should be revised to Foodies.

Required

1. Compute spending and efficiency variances for Foodies variable overhead in May 2020.
2. Compute the spending variance and production-volume variance for ~~HMN's~~ fixed overhead in May 2020.
3. Comment on ~~HMN's~~ overhead variances and suggest how Asha Ahuja might manage ~~HMN's~~ variable overhead differently from its fixed overhead costs.

8-30 Total overhead, 3-variance analysis. Dru Automobiles Ltd manufactures car accessories. For 2020, budgeted variable overhead is $90,000 for 12,000 direct labor-hours. Budgeted total overhead is $110,000 at 8,000 direct labor-hours. The standard costs allocated to the production of these accessories included a total overhead rate of 80% of standard direct labor costs.

In May 2020, Dru Automobiles incurred total overhead costs of $160,000 and direct labor costs of $255,000. The direct labor efficiency variance was $9,000 unfavorable. The direct labor flexible-budget variance was $6,000 favorable. The standard labor price was $18 per hour. The production-volume variance was $50,050 favorable.

Required

1. Compute the direct labor price variance.
2. Compute the denominator level and the spending and efficiency variances for total overhead.
3. Describe how individual variable overhead items are controlled from day to day. Also, describe how individual fixed overhead items are controlled.

8-31 Production-volume variance analysis and sales-volume variance. Marissa Designs, Inc., makes jewelry in the shape of geometric patterns. Each piece is handmade and takes an average of 1.5 hours to produce because of the intricate design and scrollwork. Marissa uses direct labor-hours to allocate the overhead cost to production. Fixed overhead costs, including rent, depreciation, supervisory salaries, and other production expenses, are budgeted at $10,800 per month. These costs are incurred for a facility large enough to produce 1,200 pieces of jewelry a month.

During the month of February, Marissa produced 720 pieces of jewelry and actual fixed costs were $11,400.

Required

1. Calculate the fixed overhead spending variance and indicate whether it is favorable (F) or unfavorable (U).
2. If Marissa uses direct labor-hours available at capacity to calculate the budgeted fixed overhead rate, what is the production-volume variance? Indicate whether it is favorable (F) or unfavorable (U).
3. An unfavorable production-volume variance could be interpreted as the economic cost of unused capacity. Why would Marissa be willing to incur this cost?
4. Marissa's budgeted variable cost per unit is $25, and it expects to sell its jewelry for $55 apiece. Compute the sales-volume variance and reconcile it with the production-volume variance calculated in requirement 2. What does each concept measure?

The standard cost per pound of direct materials is $11.50. The standard allowance is 6 pounds of direct materials for each unit of product. During August, 20,000 units of product were produced. There was no beginning inventory of direct materials. There was no beginning or ending work in process. In August, the direct materials price variance was $1.10 per pound.

In July, labor unrest caused a major slowdown in the pace of production, resulting in an unfavorable direct manufacturing labor efficiency variance of $40,000. There was no direct manufacturing labor price variance. Labor unrest persisted into August. Some workers quit. Their replacements had to be hired at higher wage rates, which had to be extended to all workers. The actual average wage rate in August exceeded the standard average wage rate by $0.50 per hour.

1. Compute the following for August:
   - **a.** Total pounds of direct materials purchased
   - **b.** Total number of pounds of excess direct materials used
   - **c.** Variable manufacturing overhead spending variance
   - **d.** Total number of actual direct manufacturing labor-hours used
   - **e.** Total number of standard direct manufacturing labor-hours allowed for the units produced
   - **f.** Production-volume variance
2. Describe how Gallo's control of variable manufacturing overhead items differs from its control of fixed manufacturing overhead items.

8-44 Review of Chapters 7 and 8, 3-variance analysis. (CPA, adapted) The Beal Manufacturing Company's costing system has two direct-cost categories: direct materials and direct manufacturing labor. Manufacturing overhead (both variable and fixed) is allocated to products on the basis of standard direct manufacturing labor-hours (DMLH). At the beginning of 2020, Beal adopted the following standards for its manufacturing costs:

	Input	Cost per Output Unit
Direct materials	5 lb. at $4 per lb.	$ 20.00
Direct manufacturing labor	4 hrs. at $16 per hr.	64.00
Manufacturing overhead:		
Variable	$8 per DLH	32.00
Fixed	$9 per DLH	36.00
Standard manufacturing cost per output unit		$152.00

DLH should be revised to DMLH.

The denominator level for total manufacturing overhead per month in 2020 is 37,000 direct manufacturing labor-hours. Beal's budget for January 2020 was based on this denominator level. The records for January indicated the following:

Direct materials purchased	40,300 lb. at $3.80 per lb.
Direct materials used	37,300 lb.
Direct manufacturing labor	31,400 hrs. at $16.25 per hr.
Total actual manufacturing overhead (variable and fixed)	$650,000
Actual production	7,600 output units

Required

1. Prepare a schedule of total standard manufacturing costs for the 7,600 output units in January 2020.
2. For the month of January 2020, compute the following variances, indicating whether each is favorable (F) or unfavorable (U):
   - **a.** Direct materials price variance, based on purchases
   - **b.** Direct materials efficiency variance
   - **c.** Direct manufacturing labor price variance
   - **d.** Direct manufacturing labor efficiency variance
   - **e.** Total manufacturing overhead spending variance
   - **f.** Variable manufacturing overhead efficiency variance
   - **g.** Production-volume variance

8-45 Nonfinancial variances. Kathy's Kettle Potato Chips produces gourmet chips distributed to chain sub shops throughout California. To ensure that their chips are of the highest quality and have taste appeal, Kathy has a rigorous inspection process. For quality control purposes, Kathy has a standard based on the number of pounds of chips inspected per hour and the number of pounds that pass or fail the inspection.

Kathy expects that for every 1,000 pounds of chips produced, 200 pounds of chips will be inspected. Inspection of 200 pounds of chips should take 1 hour. Kathy also expects that 1% of the chips inspected will fail the inspection. During the month of May, Kathy produced 113,000 pounds of chips and inspected 22,300