Exercise 11-11 (20 minutes)

1. Total rate: $\frac{\$480,000}{60,000 \text{ MHs}} = \$8 \text{ per MH}$

   Variable rate: $\frac{\$180,000}{60,000 \text{ MHs}} = \$3 \text{ per MH}$

   Fixed rate: $\frac{\$300,000}{60,000 \text{ MHs}} = \$5 \text{ per MH}$

2. The standard hours per unit of product are:
   60,000 hours ÷ 40,000 units = 1.5 hours per unit

   Given this figure, the standard hours allowed for the actual production would be:
   42,000 units × 1.5 hours per unit = 63,000 standard hours allowed.

3. Variable overhead spending variance:
   Variable overhead spending variance = (AH × AR) – (AH × SR)
   ($185,600) – (64,000 hours × $3 per hour) = $6,400 F

   Variable overhead efficiency variance:
   Variable overhead efficiency variance = SR (AH – SH)
   $3 per hour (64,000 hours – 63,000 hours) = $3,000 U

   The fixed overhead variances would be as follows:

Actual Fixed Overhead Cost	Budgeted Fixed Overhead Cost	Fixed Overhead Cost Applied to Work in Process
$302,400	$300,000*	63,000 hours × $5 per hour = $315,000

Budget Variance, $2,400 U	Volume Variance, $15,000 F

   *As originally budgeted. This figure can be expressed as:
   60,000 denominator hours × $5 per hour = $300,000.

Exercise 11-11 (continued)

Alternative approach to the budget variance:

$$\begin{array}{rcl} \text{Budget variance} & = & \text{Actual fixed overhead cost} - \text{Budgeted fixed overhead cost} \\ & = & \$302{,}400 - \$300{,}000 \\ & = & \$2{,}400 \text{ U} \end{array}$$

Alternative approach to the volume variance:

Volume Variance = Fixed portion of the predetermined overhead rate × (Denominator hours – Standard hours allowed)

= $5 per hours (60,000 hours – 63,000 hours)

= $15,000 F