2.3 Simplest Form of a Fraction
 2.3 Exercise Set, page 137:1, 4, 25, 45, 52, 55

2.4 Fractions and Mixed Numbers
 2.4 Exercise Set, page 148: 1, 11, 27,45, 57, 81, 95

  2.5 Dividing Fractions and Mixed Numbers
   2.5 Exercise Set, page 158: 1, 5, 9, 18, 31,45

Exam 1 - Wednesday, 02/18/26, 1.2-1.7, 2.1-2.5

$$\frac{4 \text{ prob}}{20 \text{ mn}} = \frac{x}{80 \text{ min}}$$

How many problems should be on exam 1?

$$x(20 \text{ m\n}) = (4 \text{ prob})(80 \text{ m\n})$$

$$x = \frac{(4)(80)}{20} \text{ prob.}$$

$$x = (4)(4) \text{ prob}$$

$$x = 16 \text{ prob}$$

2.3

2.3 Exercise Set MyLab Math ▶

Objective A *Write each fraction in simplest form. See Examples 1 through 7.*

26. $\dfrac{60}{150}$

$$= \frac{(6)(10)}{(15)(10)} = \frac{(2)(3)}{(5)(3)} = \boxed{\frac{2}{5}}$$

$$\frac{\overset{2}{\cancel{60}}}{\underset{5}{\cancel{150}}} = \boxed{\frac{2}{5}}$$

25. $\dfrac{90}{120} = \dfrac{\cancel{(9)}^{3}(10)}{\cancel{(3)}(40)} = \dfrac{(3)(10)}{40}$

$= \boxed{\dfrac{3}{4}}$

$\dfrac{90}{120} = \dfrac{(9)(10)}{(12)(10)} = \dfrac{9}{12} = \dfrac{3 \cdot 3}{3 \cdot 4} = \boxed{\dfrac{3}{4}}$

2.4

Convert $4\frac{5}{9}$ to an improper fraction

$\dfrac{(4)(9) + 5}{9} = \dfrac{36 + 5}{9} = \boxed{\dfrac{41}{9}}$

motivation! $1 = \dfrac{9}{9}$

$\Rightarrow 4(1) = \dfrac{(4)(9)}{9} = \dfrac{36}{9}$

Altogether $\dfrac{36}{9} + \dfrac{5}{9} = \boxed{\dfrac{41}{9}}$

Altogether $\frac{38}{9} + \frac{3}{9} = \boxed{\frac{41}{9}}$

Convert $\frac{41}{9}$ to a mixed number

$$4\frac{5}{9}$$

$$9\overline{)41}$$
$$\underline{36}$$
$$5$$

2.4

Multiply. Write each answer in simplest form.

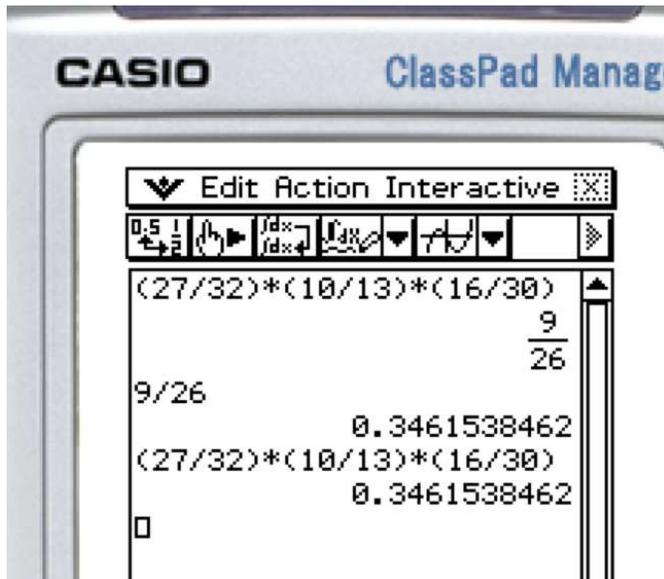**22.** $\frac{27}{32} \cdot \frac{10}{13} \cdot \frac{16}{30}$

$$= \left(\frac{16}{32}\right)\left(\frac{27}{13}\right)\left(\frac{10}{30}\right)$$

$$= \left(\frac{1}{2}\right)\left(\frac{27}{13}\right)\left(\frac{1}{3}\right)$$

$$= \boxed{\frac{9}{26}}$$

Calculator check

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                 0.3461538462
   (27/32)*(10/13)*(16/30)
                 0.3461538462
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2.5
Memorize

Reciprocal of a Fraction

Two numbers are **reciprocals** of each other if their product is 1. The reciprocal of the fraction $\dfrac{a}{b}$ is $\dfrac{b}{a}$ because $\dfrac{a}{b} \cdot \dfrac{b}{a} = \dfrac{a \cdot b}{b \cdot a} = 1.$

Finding the Reciprocal of a Fraction

To find the reciprocal of a fraction, interchange its numerator and denominator.

Memorize

Dividing Fractions

To divide two fractions, multiply the first fraction by the reciprocal of the second fraction.

If $a, b, c,$ and d represent numbers, and $b, c,$ and d are not 0, then

$$\frac{a}{b} \div \frac{c}{d} = \frac{a}{b} \cdot \frac{d}{c} = \frac{a \cdot d}{b \cdot c}$$

reciprocal

To divide two fractions, invert the denominator and multiply

3   /   / \

$$\frac{\frac{3}{4}}{\frac{1}{8}} = \left(\frac{3}{4}\right)\left(\frac{\overset{2}{\cancel{8}}}{1}\right)$$

$$= \boxed{6}$$

check $(6)\left(\frac{1}{8}\right) = \frac{(2)(3)}{(2)(4)} = \frac{3}{4}$ ✓

$$\left(\frac{3}{4}\right) \div \left(\frac{1}{8}\right)$$

$$(3/4) \div (1/8)$$