1. Solve each equation. If applicable, state whether it is an identity or a contradiction.
a) $5(x+3)+4 x-5=4-2 x$
b) $-6 x+2 x-11=-2(2 x-3)+4$
c) $4(x+2)-8 x-5=-3 x+9-2(x+6)$
d) $7[2-(3-4 x)]-2 x=-9+2(1-5 x)$
e) $-[3 x-(2 x+5)]=-4-[3(2 x-4)-3 x]$
f) $-2+3 x=5 x-2(x-3)-8$
2. The expression $0.06(10-x)(100)$ is equivalent to which of the following?
a) $0.06-0.06 x$
b) $60-6 x$
c) $6-6 x$
d) $6-0.06 x$
3. Suppose that in solving the equation $\frac{1}{3} x+\frac{1}{4}=\frac{1}{6} x$, we begin by multiplying each side by 24 , rather than the least common denominator, 12 . Would we get the correct solution?
4. Solve each equation.
a) $\frac{x}{10}-\frac{x}{15}=1$
b) $\frac{x-10}{5}+\frac{2}{5}=-\frac{x}{3}$
c) $\frac{3 x-1}{4}+\frac{x+3}{6}=3$
d) $\frac{2}{3}(9 y-6)-5=\frac{2}{5}(30 y-25)-7 y$
5. Concept check: To solve a linear equation with decimals, we usually begin by multiplying by a power of 10 so that all coefficients are integers. What is the least power of 10 that will accomplish this goal in each equation?
a) $0.05 x+0.12(x+5000)=940$
b) $0.006(x+2)=0.007 x+0.009$
6. Solve each equation.
a) $0.08 x+0.12(260-x)=0.48 x$
b) $0.004 x+0.006(50-x)=0.004(68)$
7. Solve each formula for the specified variable.
a) $I=\operatorname{Pr} t$ for $t$
b) $V=\frac{1}{3} \pi r^{2} h$ for $h$
c) $F=\frac{9}{5} C+32$ for $C$
d) $2 \pi r+4 r=5$ for $r$
8. If the simple interest on $\$ 1000$ for 2 years is $\$ 300$, then what is the rate?
9. The area of the shaded triangle $A B E$ is $20 \mathrm{~cm}^{2}$. Find the area of the trapezoid.
10. A rectangular reflecting pool with a horizontal bottom holds 60,000
 gallons of water. If the pool is 40 feet by 100 feet, how deep is the water?
11. If the circumference of the earth is 25,000 miles, then what is the radius?
12. Between 2000 and 2007, the estimated population of Pittsfield declined from 134,953 to 129,798. What was the percent decrease to the nearest tenth?
