Lesson 20 Practice Problems

1. A local office supply store charges \$18 to set up their business card printing machine with the design and \$0.15 in materials per business card to print. Select **all** equations that could represent an expression for the average cost $A(x)$ of printing a batch of x business cards.

   A. $A(x) = \frac{18+x}{0.15}$

   B. $A(x) = \frac{18+0.15x}{x}$

   C. $A(x) = \frac{0.15+18x}{x}$

   D. $A(x) = \frac{0.15}{18+x}$

   E. $A(x) = \frac{18+0.15x}{18+x}$

   F. $A(x) = \frac{18}{x} + 0.15$

2. The school band is in charge of a new set of uniforms made with a new logo. A local business charges \$140 to set up the logo with the design and \$0.25 in materials per logo printed. The function $C(x) = \frac{140+0.25x}{x}$ represents the average cost per logo if x uniforms are printed by this business.

   a. What is the average cost per uniform to get the logo printed on 25 uniforms?

   b. What is the average cost per uniform to get the logo printed on 100 uniforms?

   c. How many uniforms should be printed to have an average cost of \$1 per logo?

   d. What will happen to the price as the number of uniforms printed increases?

3. Two competing sports equipment suppliers sell footballs at different prices. Supplier A charges \$85 in shipping, and charges \$2.59 per football. Supplier B charges \$50 shipping, and charges \$4.29 per football. A school wants to buy 40 balls. Which supplier has the lowest average cost per ball?

4. What is one point of intersection between the graphs of the functions $f(x) = (x + 6)(x + 2)$ and $g(x) = x + 6$?

   A. $(0, 6)$

   B. $(-1, 5)$

   C. $(-2, 0)$

   D. $(-4, -4)$

   (From Unit 2, Lesson 11.)

5. The graph of a polynomial $f(x) = (5x - 3)(x + 4)(x + a)$ has x-intercepts at -4, $\frac{3}{5}$, and 6. What is the value of a?

   (From Unit 2, Lesson 15.)

6. The function $f(x) = \frac{3x-4}{x+6}$ can be rewritten in the form $f(x) = 3 + \frac{-22}{x+6}$. What is the end behavior of $y = f(x)$?

   (From Unit 2, Lesson 19.)