AM: WP – Rational equations

3. Elisa has $18,000 to start a bagel shop in a shopping mall. She can produce a dozen bagels for $0.60. How many dozen must Elisa produce before her average cost per dozen (including her initial $18,000) drops to $1.20?

[A] 29,000   [B] 28,000   [C] 30,000   [D] 15,000

Cost

$18000

$.60 per dozen bagels

$\dfrac{\text{Cost}}{\text{\#of doz}}$

d

$d = $ # of doz. bagels

Cost per dozen bagels

1.20

LCD: d

$\cancel{d} \cdot \dfrac{18000 + .60d}{\cancel{d}} = 1.20 \cdot d$

$18000 + .60d = 1.20d$

$\begin{array}{r} -.60d \quad -.60d \end{array}$

$\dfrac{18000}{.60} = \dfrac{.60d}{.60}$

$d = 30000$

9

Slide 2- 39

AM: WP – Rational equations

4. Brendan has been officially at bat 80 times and has hit 20 times. His batting average is
$\frac{20}{80} = 0.250$. How many consecutive hits must he get to increase his batting average to 0.600?

[A] 140   [B] 90   [C] 70   [D] none of these

$$\frac{\text{\# of hits}}{\text{\# of 'at bats'}} \qquad \frac{20}{80}$$

X = # of consecutive hits

LCD: 80 + X

$$(80+X)\,\frac{20+X}{80+X} = .600\,(80+X)$$

$$20+X = 48 + .600X$$
$$-20 - .600X \quad -20 \quad -.600X$$
$$\frac{.4X}{.4} = \frac{28}{.4} \qquad X = 70$$

9

Slide 2- 40