

Key

Consecutive Numbers

Consecutive integers (n), (n+1), (n+2) ...

Consecutive EVEN or ODD integers (n), (n+2), (n+4) ...

1. What is the smallest of 3 consecutive positive integers if the product of the smaller two integers is 5 less than 5 times the largest integer? (NON CALC)

(5, 6, 7)

$$n, n+1, n+2$$

$$n(n+1) = n^2 + n$$

$$5(n+2) = 5n + 10$$

$$n^2 + n = 5n + 10 - 5$$

$$n^2 + n = 5n + 5$$

$$n^2 - 4n - 5 = 0$$

$$(n-5)(n+1) = 0 \quad n=5$$

2. What is the largest of 3 consecutive even integers if the sum of the integers is 162?

- a. 52  
b. 54  
**c. 56**  
d. 58

$$n, n+2, n+4$$

$$3n + 6 = 162$$

$$3n = 156$$

$$n = 52$$

$$52, 54, 56$$

3. What is the smallest of two consecutive positive even integers whose product is 224?

- a. 12  
**b. 14**  
c. 16  
d. 18

$$n, n+2$$

$$n(n+2) = 224$$

$$n^2 + 2n - 224 = 0$$

$$(n+16)(n-14) = 0$$

$$n = 14$$

$$14, 16$$

4. Find two consecutive ~~even~~ <sup>odd</sup> integers such that seven times the first equals five times the second.

odd  
 $n, n+2$

$$7n = 5(n+2)$$

$$7n = 5n + 10$$

$$2n = 10 \quad n = 5, 7$$

5. Alex walked 1 mile in 15 minutes. Sally walked 3,520 yards in 24 minutes. In miles per hour, how much faster did Sally walk than Alex? (Note: 1 mile = 1760 yards) (NON CALC)

Alex  $\frac{1 \text{ mile}}{15 \text{ min}} \cdot \frac{60 \text{ min}}{1 \text{ hr}} = \frac{60 \text{ miles}}{15 \text{ hrs}} = 4 \text{ mph}$

Sally  $\frac{3,520 \text{ yd}}{24 \text{ min}} \cdot \frac{1 \text{ mi}}{1760 \text{ yd}} \cdot \frac{60 \text{ min}}{1 \text{ hr}} = 5 \text{ mph}$

$$\frac{3,520 \text{ yd}}{24 \text{ min}} \cdot \frac{1 \text{ mile}}{1760 \text{ yd}} \cdot \frac{60 \text{ min}}{1 \text{ hr}} = 5 \text{ mph}$$

$$\frac{1760}{1} \cdot \frac{1}{1760} \cdot 5 = 5 \text{ mph}$$

1 mph

6. Convert 43 miles into feet.

$$43 \text{ miles} \cdot \frac{5,280 \text{ ft}}{1 \text{ mi}} = 227,040$$

$$\begin{array}{r} 5,280 \\ \times 43 \\ \hline 15840 \\ 211200 \\ \hline 227040 \end{array}$$

7. Katie ran 3 miles in 30 minutes. What was Katie's average speed in feet per second?

$$\frac{3 \text{ miles}}{30 \text{ min}} \cdot \frac{5,280 \text{ ft}}{1 \text{ mile}} \cdot \frac{1 \text{ min}}{60 \text{ sec}} = \frac{15840}{1800} = 8.8$$

8. Jim throws a ball at a speed of 2 feet per second. How fast is the ball moving in yards per hour?

- a. 40 yards per hour  
b. 1200 yards per hour  
**c. 2400 yards per hour**  
d. 5400 yards per hour

$$\frac{2 \text{ ft}}{1 \text{ sec}} \cdot \frac{1 \text{ yd}}{3 \text{ ft}} \cdot \frac{60 \text{ sec}}{1 \text{ min}} \cdot \frac{60 \text{ min}}{1 \text{ hour}} = 2400$$