

Lesson 10

- 1) direct route

$$18^2 + 24^2 = H^2$$

$$324 + 576 = 900$$

$$30 \text{ miles} = H$$

same way he came

$$18 + 24 = 42 \text{ miles}$$

$42 - 30 = 12$ miles shorter by direct route

- 2) $15^2 + 36^2 = H^2$

$$225 + 1296 = 1521$$

$$39 \text{ ft.} = H$$

$$39 + 3 = 42 \text{ ft.}$$

- 3) $3^2 + 4^2 = H^2$

$$9 + 16 = 25$$

$$5 \text{ miles} = H$$

$$5 + 5 = 10 \text{ miles}$$

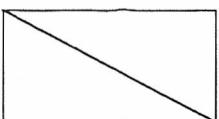
- 4) $20^2 + 48^2 = H^2$

$$400 + 2304 = 2704$$

$$52 \text{ mi.} = H$$

$$P = 20 + 48 + 20 + 48 = 136 \text{ mi.}$$

$$136 + 53 = 188 \text{ miles of fence}$$



$$5) \frac{A}{B} \div \frac{C}{D} = \frac{AD}{BD} \div \frac{BC}{BD} = \frac{AD \div BC}{BD \div BD} = \frac{AD \div BC}{1} = \frac{AD}{BC}$$

$$6) \frac{A}{B} \times \frac{D}{C} = \frac{AD}{BC}$$

$$7) \frac{AD}{BC} = \frac{AD}{BC}$$

$$8) \frac{\frac{XY}{Z} \div \frac{B}{CD}}{\frac{B}{CD}} = \frac{\frac{XYCD}{Z} \div \frac{ZB}{ZCD}}{\frac{ZCD}{ZCD}} = \frac{\frac{XYCD}{Z} \div \frac{ZB}{ZCD}}{1} = \frac{XYCD}{ZB}$$

$$\frac{XY}{Z} \times \frac{CD}{B} = \frac{XYCD}{ZB}$$

The answers are equal.

Lesson 11

- 1) multiply by 3 and add 1

- 2) 202

- 3) divide by 2

- 4) $5/8$

- 5) take square root of

- 6) 2

- 7) subtract half of what was subtracted the previous time

- 8) $2 \frac{1}{2}; 2 \frac{1}{4}$

- 9) see figure 1 below

- 10) 2; no

- 11) see figure 2 below

- 12) the number of circles equals the step number squared

- 13) the number of squares equals the step number times 4

- 14) $8^2 = 64$ circles

$$8 \times 4 = 32 \text{ squares}$$

- 15) $1 \times 5 = 5$ sq. units

Lesson 12

- 1) 1×36

$$2 \times 18$$

$$3 \times 12$$

$$4 \times 9$$

$$6 \times 6$$

- 2) $P = 2(1) + 2(36) =$

$$2 + 72 = 74 \text{ units}$$

$$P = 2(2) + 2(18) =$$

$$4 + 36 = 40 \text{ units}$$

$$P = 2(3) + 2(12) =$$

$$6 + 24 = 30 \text{ units}$$

$$P = 2(4) + 2(9) =$$

$$8 + 18 = 26 \text{ units}$$

$$P = 2(6) + 2(6) =$$

$$12 + 12 = 24 \text{ units}$$

- 3) 6×6

- 4) 6×10

- 5) 1×15

- 6) 1×5

$$2 \times 4$$

$$3 \times 3$$

- 7) $1 \times 5 = 5$ sq. units

$$2 \times 4 = 8$$
 sq. units

$$3 \times 3 = 9$$
 sq. units

- 8) $3 \times 3 = 9$ sq. ft.

- 9) The shape she chooses would depend on what she intended it to be used for. Some possibilities:
 $5 \times 5 = 25$ sq. ft.
 $4 \times 6 = 24$ sq. ft.
 $3 \times 7 = 21$ sq. ft.

- 10) They enclose the most space with less exposure.

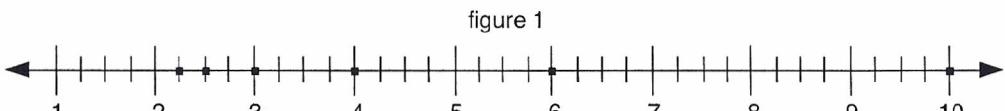


figure 1

figure 2

| step | 1 | 2 | 3 | 4 | 5 |
|---------|---|---|----|----|----|
| circles | 1 | 4 | 9 | 16 | 25 |
| squares | 4 | 8 | 12 | 16 | 20 |