

- 1) Bill can deliver papers three times as fast as Stan can. If they work together, it takes them one hour. How long would it take each to deliver the paper alone?

Time for

$$\text{Bill} = x$$

$$\text{Stan} = 3x$$

$$+ = 1$$

$$\frac{1}{3x} + \frac{1}{x} = 1$$

$$3x \left( \frac{1}{3x} + \frac{1}{x} \right) = 3x(1)$$

$$1 + 3 = 3x$$

$$4 = 3x$$

$$4/3 = x$$

/20

Bill takes  $4/3$  hour

Stan takes  $3(4/3)$  hour or 4 hours

2) Solve the formulas for the specified letter.

$$\frac{1}{R} = \frac{1}{r_1} + \frac{1}{r_2}; R$$

$$R, r_1, r_2 \left( \frac{1}{R} \right) = \left( \frac{1}{r_1} + \frac{1}{r_2} \right) R, r_1, r_2$$

$$r_1, r_2 = R r_2 + R r_1$$

$$r_1, r = R (r_2 + r_1)$$

$$\frac{r_1, r_2}{(r_2 + r_1)} = R$$

✓ 30

3) Solve the formulas for the specified letter.

$$\frac{E}{e} = \frac{R+r}{r}; r$$

$$r e \left( \frac{E}{e} \right) = \left( \frac{R+r}{r} \right) r e$$

$$r E = R e + r e$$

$$r E - r e = R e$$

$$r (E - e) = R e$$

$$r = \frac{R e}{E - e}$$

✓ 10