

1. Join: Start Unknown
2. Separate: Change Unknown
3. Compare: Referent Unknown
4. Multiplication (Multiplicative Comparison)
5. Measurement Division
6. Part Part Whole: Whole Unknown
7. Separate: Result Unknown
8. Join: Result Unknown
9. (a) 4            (b) 5            (c) \$4.60/hour
10. (a) 2.5 h    (b) 20 mph
11. Answers may vary.
  - (a) 34 children are going on a school field trip to the zoo. If a chaperone is required for 6 children, how many adults should go on the field trip?
  - (b) If I have \$34 in my wallet and Lowes has plants for \$6, how many plants can I afford?
  - (c) Grandma baked 34 cookies for her 6 grandchildren. Each child got 5 cookies. How many were left over (for Grandma to enjoy, herself)?
  - (d) The principal ordered 34 pizzas for 6 primary classes. On average, how many pizzas were ordered per class?
  - (e) Fred earned \$34 for 6 hours of raking leaves. How much did he earn per hour?
12. (a) decade            (b) incrementing            (c) combining tens and ones
13. direct modeling; trial & error; matching; largest; down
14. 10; invented
15. Answers may vary.
  - (1) 28, 38, 48, 58, 68, 78, 79, 80, 81
  - (2) 53, 63, 73, 74, 75, 76, 77, 78, 79, 80, 81
  - (3)  $28 + 2 + 53 - 2 = 30 + 51 = 81$

16. Answers may vary.

$$(1) (20 + 8)(50 + 3) = 1000 + 60 + 400 + 24 = 1,484$$

$$(2) \begin{array}{r} 28 \times 53 \\ 14 \ 106 \\ 7 \ 212 \\ 3 \ 424 \\ 1 \ 848 \end{array} \quad \text{Add } 212 + 424 + 848 = 1,484$$

17. Lydia has 20 pairs of shoes, and Joanna has 12 pairs. How many more pairs does Lydia have than Joanna?; 8

Mary had some money in her purse and then spent \$15. Now she has \$24. How much money did she have at first?; \$39

A dogwood tree is 3 feet tall. A Japanese elm tree is 4 times as tall. How tall is the elm tree?; Multiplication (multiplicative comparison); 12 feet

Measurement division;  $\underline{12} \times 5 = 60$

Join: Start unknown;  $\underline{6} + 8 = 14$

A recreational league has 30 participants. If there are 6 basketball teams in the league, how many players are on each team?; 5 players

Sarah started the day at the beach with 9 shells and found some more. Now she has 17 shells. How many did she find?; 8 shells

Part Part Whole: Part Unknown;  $6 + \underline{9} = 15$

Fred has 8 matchbox cars. Mark has 15 more cars than Fred. How many matchbox cars does Mark have?; 23 cars

**Do your best! Rise to the challenge! Live and learn!**