



Cooperative-Learning Activity

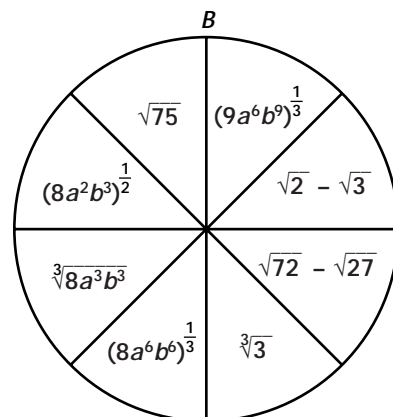
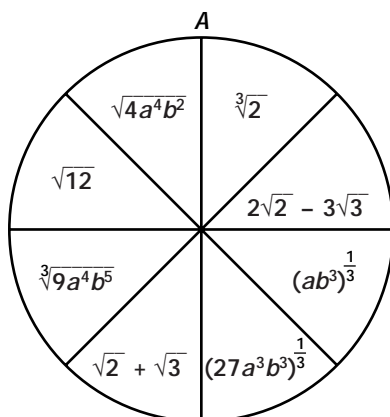
8.7 *Spinning Radicals*

Group members: 3

Materials: paper clips, pencil, number cube

Roles: **Leader** rolls number cube to determine operation and checks work of Players**Players** spin the spinners to find two expressions that each represent square roots or cube roots

Preparation: To use the spinners, hold a pencil through one end of a paper clip and place the pencil point at the center of the spinner. Then spin the paper clip around the pencil. Spin again if the paper clip lands on a line.
The Players will perform operations on two expressions determined by the Leader.



- Procedures:
- Each member chooses a role. The Leader rolls the number cube until a 1, 2, 3, or 4 is obtained and calls out the operation as follows:
1: addition 2: subtraction 3: multiplication 4: division
 - The first Player spins Spinner A and records the expression in the table. Then he or she spins Spinner B until an expression with the same root is determined. The second Player then spins in the same manner.

Player	Operation	Spinner A	Spinner B	Answer	Point

- Each Player performs the operation indicated in his or her table and writes the answer in simplified form. In some cases, it may not be possible to simplify beyond writing the indicated problem.
- The Leader awards 2 points for a correct answer, 1 point for a correct answer that can be simplified further and 0 points for an incorrect answer.
- Switch roles and play until one member has a total of 10 points.

ANSWERS

Lesson 8.5

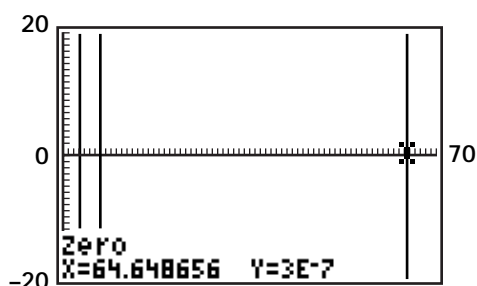
$$r \cdot t = d$$

2-4.	Father	x	$\frac{1000}{x}$	1000
	Mother	$x - 10$	$\frac{500}{x - 10}$	500
	Son	$\frac{2x - 10}{2}$	$\frac{500}{x - 5}$	500
	Total		33	2000

5. $\frac{1000}{x} + \frac{500}{x - 10} + \frac{500}{x - 5} = 33$

6. $-33x^3 + 2495x^2 - 24,150x + 50,000$

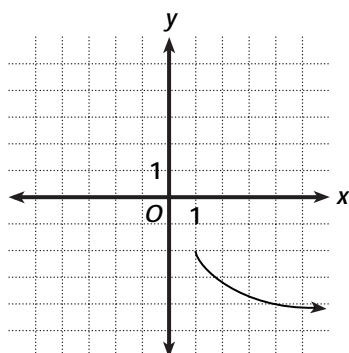
7. Answers may vary. Sample answer: The zeros can be found on a graphics calculator. A car would probably be traveling at least 40 miles per hour or higher so the maximum value for x should be greater than 40.



The father's rate is 64.6 miles per hour, the mother's rate is 54.6 miles per hour, and the son's rate is 59.6 miles per hour.

Lesson 8.6

3. Answers may vary. Sample answer: For reflection, vertical translation, $a = -1$, $b = 1$ and $c = -2$: $y = -\sqrt{x - 1} - 2$



Lesson 8.7

Answers may vary. Sample answer (rows and columns transposed):

Player	1	2
Operation	+	\times
A	$\sqrt{4a^4b^2}$	$(27a^3b^3)^{\frac{1}{3}}$
B	$\sqrt{2} - \sqrt{3}$	$\sqrt[3]{8a^3b^3}$
Answer	$2a^2b + \sqrt{2} - \sqrt{3}$	$6a^2b^2$

Lesson 8.8

- r^3 varies directly as the square of T .
- $C = 2.5096 \times 10^{19}$;
 $T_p = \sqrt{\frac{(r_p)^3}{C}}$
- 224.67 Earth days
- Answers may vary. Sample answer: The average distance between the planet and the Sun.

Cooperative-Learning Activity — Chapter 9

Lesson 9.1

- Answers may vary. Sample answer: If the city park at (1, 4) and the school at (-4, -3) are chosen, the meeting place is $(-\frac{3}{2}, \frac{1}{2})$.

Lesson 9.2

- The curve is a parabola with point O as the vertex, point F as the focus, and the x -axis as the axis of symmetry.
- $x = \frac{1}{16}y^2$