

## Lesson 81 • Central Angles and Arcs

### *Power Up*

- Facts
- Mental Math
- Problem Solving

### *New Concepts*

- Examples
- Practice Set

### *Written Practice*

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**Facts**

Simplify.

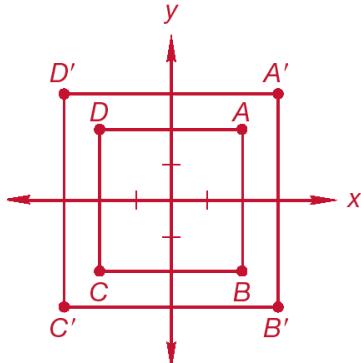
$2x + x$	$2x - x$	$(2x)(x)$	$\frac{2x}{x} = 2$	$\frac{x^2}{x} = x$
$3x$	$x$	$2x^2$		
$8xy + 2xy$	$8xy - 2xy$	$(8xy)(2xy)$	$\frac{8xy}{2xy} = 4$	$\frac{8x^2y}{2y} = 4x^2$
$10xy$	$6xy$	$16x^2y^2$		
$x + y + x$	$x + y - x$	$(x)(y)(-x)$	$\frac{xy}{x} = y$	$\frac{x^2y^3}{x^2y} = y^2$
$2x + y$	$y$	$-x^2y$		
$4x + x + 2$	$4x - x - 2$	$(4x)(-x)(-2)$	$\frac{-4x}{2x} = -2$	$\frac{4x^3}{2x^2} = 2x$
$5x + 2$	$3x - 2$	$8x^2$		

**Written Practice**

1. 69

2. 75 crates

3.



4. a. 16 units, 24 units;  
b. yes,  $16 \times 1.5 = 24$   
c.  $16 \text{ units}^2$ ,  $36 \text{ units}^2$   
d. The areas are related by the square of the scale factor.;  $16 \times (1.5)^2 = 36$

5. a.  $60^\circ$ b.  $2\pi$  in.c.  $6\pi \text{ in.}^2$ 6.  $3d^2 + 12d$ 7.  $5\sqrt{2}$ 8.  $10\sqrt{5}$ 9.  $\frac{5x^3}{3m^2}$ 

10. 10

**Written Practice***continued*

11.  $x > -4$



12.  $y = 2x - 5$

13. Yes; Sample answer: The side lengths fit the Pythagorean Theorem:  $12 + \sqrt{3^2} = 22$ 

14.  $\frac{\$45}{1 \text{ hour}} \times \frac{1 \text{ hour}}{60 \text{ min}} \times \frac{100\text{¢}}{\$1} = \frac{75\text{¢}}{\text{min}}$

15. yes; \$5

16. a.  $0.\overline{26}$ b.  $26\frac{2}{3}\%$ c.  $\frac{1}{4}$ 

17. 5

18.  $42 \text{ ft}^3$

19.  $a = 8, b = 34, c = 30$

20.  $m = 2$

21.  $x = \frac{5}{2} \text{ or } 2.5$

22. a.  $5x(2x - 3)$

b.  $20x + 15$

**Written Practice**

*continued*

23.  $1 \text{ ft } 7\frac{1}{2} \text{ in.}$

24. B, 101

25. a. apple, orange, grape, cranberry, other  
b. 25%

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