

Answers to All Focus Exercises

Chapter 0

Section 0.1

(For #1 and 2, your answers may be different. Here are possible responses.)

1.
 - a) A **product** is a multiplication problem *and* the multiplication answer; for example, the product of 3 and 4 is *written* $3 \cdot 4$, and the product of 3 and 4 *is* **12**.
 - b) A **sum** is an addition problem *and* the addition answer; for example, the sum of 6 and 2 is *written* $6 + 2$, and the sum of 6 and 2 *is* **8**.
 - c) A **quotient** is an division problem *and* the division answer; for example, the quotient of 14 and 7 is *written* $14 \div 7$, and the quotient of 14 and 7 *is* **2**.
 - d) A **difference** is an subtraction problem *and* the subtraction answer; for example, the difference of 10 and 3 is *written* $10 - 3$, and the difference of 10 and 3 *is* **7**.
2.
 - a) The associative property allows for regrouping if the expression is either all addition or all multiplication.
 Example for addition: $(2 + 5) + 3 = 2 + (5 + 3) = 2 + 5 + 3$
 Example for multiplication: $(2 \cdot 5) \cdot 3 = 2 \cdot (5 \cdot 3) = 2 \cdot 5 \cdot 3$
 - b) The commutative property allows for rearranging the numbers in an expression if the operation is either addition or multiplication.
 Example for addition: $2 + 5 = 5 + 2$
 Example for multiplication: $3 \cdot 8 = 8 \cdot 3$
3.

a) 17	b) 2	c) 4	d) 48	e) 5	f) 21
g) 9	h) 38				

Section 0.2

1.

a) 216	b) 32	c) 225	d) 81
e) 100	f) 10,000	g) 100,000	h) 100,000,000
2.

a) 4	b) 5	c) 6	d) 1	e) 9	f) 7
g) 8	h) 10	i) 2	j) 3	k) 4	l) 1
m) 10	n) 4	o) 20	p) 2		

Section 0.3

1. a) 7 b) 18 c) 45 d) 31 e) 10 f) 144
2. a) 72 b) 12 c) 4 d) 7 e) 25 f) 36
3. a) 56 b) 70 d) 77 e) 33

Section 0.4

1. a) Multiples of 4: 4, 8, 12, 16, 20, 24, 28, 32
b) Multiples of 7: 7, 14, 21, 28, 35, 42, 49, 56
2. a) The factor pairs of 32 are: 1 and 32 2 and 16 4 and 8
b) The factor pairs of 40 are: 1 and 40 2 and 20 4 and 10 5 and 8
3. a) composite b) prime c) composite d) composite
e) prime f) neither
4. a) 2 only b) 2 and 5 c) (none) d) 2 and 3
5. a) 55 is a composite factor of 605. b) 30 is a composite factor of 870.
6. a) $2 \cdot 3 \cdot 3$ or as $2 \cdot 3^2$ b) $3 \cdot 3 \cdot 7$ or as $3^2 \cdot 7$
c) $3 \cdot 3 \cdot 3 \cdot 5$ or as $3^3 \cdot 5$ d) $2 \cdot 2 \cdot 2 \cdot 3 \cdot 3 \cdot 3$ or as $2^3 \cdot 3^3$
e) $2 \cdot 2 \cdot 2 \cdot 2 \cdot 3 \cdot 3 \cdot 5$ or as $2^4 \cdot 3^2 \cdot 5$ d) $2 \cdot 3 \cdot 5 \cdot 5 \cdot 7$ or as $2 \cdot 3 \cdot 5^2 \cdot 7$

Section 0.5

1. a) 15 b) 12 c) 15 d) 8 e) 30 f) 14
2. a) 72 b) 30 c) 144 d) 270
3. a) 60 b) 120 c) 210 d) 225

Section 0.6

1. a) $\frac{21}{30}$ b) $\frac{10}{24}$ c) $\frac{8}{18}$ d) $\frac{15}{40}$ e) $\frac{8}{72}$ f) $\frac{54}{9}$
2. a) $\frac{3}{5}$ b) $\frac{3}{4}$ c) $\frac{1}{3}$ d) $\frac{4}{11}$ e) $\frac{10}{3}$ f) $\frac{3}{2}$
g) $\frac{1}{4}$ h) $\frac{3}{7}$ i) 3
3. a) $\frac{5}{6}$ b) $\frac{4}{7}$ c) $\frac{3}{5}$ d) $\frac{9}{10}$ e) $\frac{14}{15}$ f) 40
4. a) $\frac{16}{15}$ b) $\frac{24}{5}$ c) 9 d) $\frac{25}{12}$ (e) 15 f) $\frac{5}{14}$
5. a) $\frac{70}{27}$ b) $\frac{16}{9}$ c) $\frac{8}{3}$ d) $\frac{5}{18}$

Section 0.7

1. a) $5 \cdot \frac{1}{9}$ b) $8 \cdot \frac{1}{3}$ c) $1 \cdot \frac{1}{6}$
2. a) $\frac{6}{11}$ b) $\frac{6}{7}$ c) $\frac{3}{4}$ d) $\frac{2}{5}$ e) $\frac{3}{4}$ f) $\frac{1}{4}$
3. a) $\frac{7}{24}$ b) $\frac{1}{3}$
4. a) $\frac{9}{10}$ b) $\frac{31}{50}$ c) $\frac{7}{18}$ d) $\frac{49}{60}$
5. a) $\frac{29}{6}$ b) $\frac{39}{8}$ c) $\frac{23}{9}$ d) $\frac{7}{10}$ e) $\frac{16}{3}$ f) $\frac{19}{5}$

Section 0.8

1. a) $\frac{3}{100}$ b) $\frac{16}{10}$ c) $\frac{84}{1,000}$
2. a) 6.1 b) .07 c) .209 d) 1.08 e) .009 f) .056
g) .027 h) .0006 i) .004
3. a) .375 b) .28 c) .275
4. a) $.777... = .\overline{7}$ b) $.4090909... = .4\overline{09}$ c) $.108108... = .\overline{108}$
5. a) $\frac{6}{9} = \frac{2}{3}$ b) $\frac{54}{99} = \frac{6}{11}$ c) $\frac{036}{999} = \frac{36}{999} = \frac{4}{111}$
6. a) .19 b) .03 c) .005 d) 1.09
7. a) 2% b) 90% c) 3.6% d) 193%
8. a) 58% b) 70% c) 104% d) 0.9%