Answers

oblem set 1

1. $\frac{3}{5}$ **2.** $\frac{1}{8}$ **3.** $1\frac{2}{3}$ **4.** $\frac{8}{15}$ **5.** $\frac{7}{40}$ **6.** $\frac{13}{24}$ **7.** $\frac{18}{65}$ **8.** $\frac{4}{15}$

9. $\frac{43}{45}$ **10.** $\frac{11}{17}$ **11.** $\frac{11}{26}$ **12.** $\frac{6}{35}$ **13.** $1\frac{11}{56}$ **14.** $\frac{17}{20}$ **15.** $\frac{21}{22}$

16. $5\frac{7}{10}$ **17.** $13\frac{17}{24}$ **18.** $8\frac{21}{40}$ **19.** $7\frac{8}{15}$ **20.** $20\frac{5}{8}$ **21.** $8\frac{14}{15}$

22. $23\frac{14}{33}$ **23.** $63\frac{7}{10}$ **24.** $36\frac{47}{104}$ **25.** $5\frac{43}{65}$ **26.** $13\frac{77}{190}$ **27.** $21\frac{47}{170}$

28. $12\frac{23}{56}$ units **29.** $17\frac{74}{77}$ units **30.** $9\frac{1}{16}$ units

practice **a.** 70 **b.** $x = 40$; $y = 100$ **c.** $x = 34$; $y = 34$

roblem set 2

1. Right angles **2.** Straight angle

3. An acute angle is an angle that is smaller than a right angle.

4. An obtuse angle is an angle that is larger than a right angle, but smaller than a straight angle.

5. (a) 90° (b) 180° (c) 360° **6.** Equilateral polygons **7.** Equiangular polygons

8. Regular polygons

9. (a) A right triangle is a triangle that contains one right angle.
(b) An acute triangle is a triangle that contains three acute angles.
(c) An obtuse triangle is a triangle that contains one obtuse angle.
(d) An equiangular triangle is a triangle that contains three angles of equal measure.

10. (a) An isosceles triangle is a triangle that has at least two sides of equal length.
(b) An equilateral triangle is a triangle that contains three sides of equal length.
(c) A scalene triangle is a triangle that contains three sides of unequal length.

11. 50 **12.** 40 **13.** $\frac{7}{9}$ **14.** $\frac{31}{35}$ **15.** $\frac{1}{3}$ **16.** $\frac{11}{15}$ **17.** $\frac{4}{7}$ **18.** $6\frac{1}{2}$

19. $7\frac{5}{8}$ **20.** $13\frac{1}{10}$ **21.** $12\frac{14}{15}$ **22.** $15\frac{4}{15}$ **23.** $9\frac{3}{10}$ **24.** $8\frac{2}{15}$ **25.** $3\frac{1}{15}$

26. $2\frac{5}{6}$ **27.** $1\frac{5}{6}$ **28.** $7\frac{5}{9}$ cm **29.** $6\frac{7}{8}$ m **30.** $5\frac{8}{15}$ units

practice **a.** 30 cm **b.** 3 m **c.** 38 km **d.** 10π in. = 31.4 in. **e.** $(18 + 3\pi)$ ft = 27.42 ft

problem set 3

1. 180° **2.** (a) 60° (b) 60°

3. The angles opposite the sides of equal length have equal measures.

4. The sides opposite the angles of equal measure have equal lengths.

5. Parallelogram **6.** Trapezoid **7.** 40 in. **8.** 4 ft **9.** 12π cm = 37.68 cm

10. 8π m = 25.12 m **11.** 90 in. **12.** 80 in. **13.** $(12 + 2\pi)$ in. = 18.28 in.

14. $(26 + 3\pi)$ in. = 35.42 in. **15.** 60 **16.** 35 **17.** $\frac{7}{9}$ **18.** $\frac{1}{6}$ **19.** 1 **20.** $7\frac{1}{4}$

21. $11\frac{8}{9}$ **22.** $21\frac{1}{2}$ **23.** $8\frac{1}{16}$ **24.** $13\frac{31}{56}$ **25.** $1\frac{1}{3}$ **26.** $11\frac{7}{33}$ **27.** $\frac{11}{12}$

28. $25\frac{15}{16}$ **29.** $26\frac{11}{15}$ ft **30.** $3\frac{1}{6}$ yd

practice

a. $12\frac{3}{5}$ **b.** $2\frac{4}{11}$ **c.** 760.939 **d.** 724.74 **e.** 302.061 **f.** 100.7

g. 75(12)(2.54) cm **h.** $\frac{450}{(12)(5280)}$ mi

problem set 4

1. A number is an idea. A numeral is a symbol used to express the idea of a number.

2. (a) Decimal system (b) The Hindus of India (c) 0, 1, 2, 3, 4, 5, 6, 7, 8, 9

3. (a) 1, 2, 3, 4, 5, ... (b) 1, 2, 3, 4, 5, ...

4. A positive real number is any number that can be used to describe a physical distance greater than zero.

5. (a) A rectangle is a parallelogram with four right angles.

(b) A rhombus is an equilateral parallelogram.

(c) A square is a rhombus with four right angles.

(d) Yes

6. 20(2.54) cm **7.** 25(12)(2.54) cm **8.** 50 cm **9.** 6 m **10.** 16π in. = 50.24 in.

11. 10π ft = 31.4 ft **12.** 54 cm **13.** 110 cm **14.** $(24 + 4\pi)$ cm = 36.56 cm

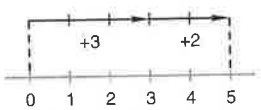
15. $(24 + 5\pi)$ cm = 39.7 cm **16.** 55 **17.** $\frac{1}{3}$ **18.** $13\frac{5}{8}$ **19.** $2\frac{7}{8}$ **20.** $90\frac{5}{16}$

21. $8\frac{2}{5}$ **22.** 30 **23.** $\frac{27}{40}$ **24.** $4\frac{20}{39}$ **25.** 6.03301 **26.** 7.98209 **27.** 55.4984

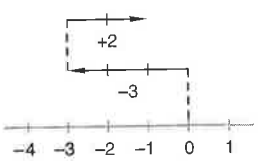
28. 44 **29.** $13\frac{7}{8}$ m **30.** $5\frac{1}{2}$ km

practice

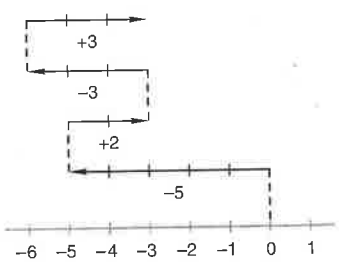
a. 4 **b.** 4.2 **c.** −4 **d.** −8 **e.** 5



f. −1



g. −3



problem set 5

1. (a) {1, 2, 3, 4, ...} (b) {0, 1, 2, 3, 4, ...} (c) {..., −3, −2, −1, 0, 1, 2, 3, ...}

2. Origin

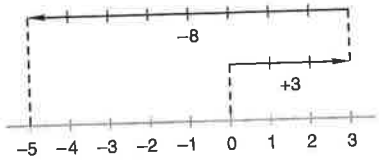
3. (a) A dot on the number line that represents the location of the number

(b) The number that the point represents

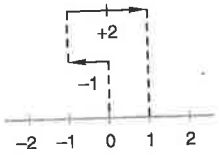
(c) The greater number is further to the right-hand side on the number line.

4. 8 **5.** 8 **6.** 12 **7.** −10 **8.** −10 **9.** 18

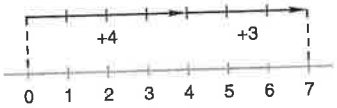
10. –5



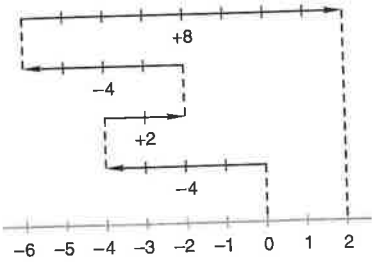
11. 1



12. 7



13. 2



14. $\frac{28}{2.54}$ in. **15.** $\frac{42}{(2.54)(12)}$ ft **16.** 70 in. **17.** 20π ft = 62.8 ft **18.** 66 yd

19. $(36 + 6\pi)$ yd = 54.84 yd **20.** 30 **21.** $14\frac{1}{9}$ **22.** $90\frac{5}{16}$ **23.** 12 **24.** $\frac{36}{59}$

25. $1\frac{109}{176}$ **26.** 23.12 **27.** 34.86 **28.** 0.9696 **29.** 4.003 **30.** $12\frac{1}{3}$ mi

practice

a. –6 **b.** –17 **c.** –17 **d.** –14

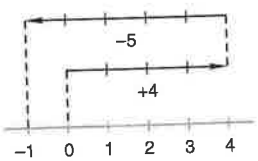
problem set 6

1. Add the absolute values of the numbers and give the result the same sign as that of the numbers.

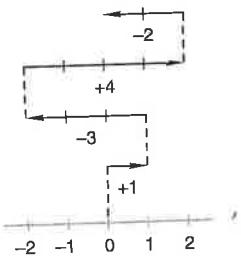
2. Take the difference of the absolute values of the numbers and give it the sign of the number whose absolute value is greater.

3. Commutative property **4.** (a) Sum (b) Difference (c) Product (d) Quotient

5. 5 **6.** –3 **7.** 3 **8.** –1



9. 0



10. 34(100) cm

11. 6(5280)(12) in.

12. 9 cm

13. 14π m = 43.96 m **14.** –11 **15.** –17 **16.** 4

17. –1 **18.** 0 **19.** –5 **20.** –20 **21.** –3 **22.** –12

23. –11 **24.** 7 **25.** –7 **26.** 54 km

27. $(50 + 5\pi)$ km = 65.7 km **28.** 65 **29.** 4 **30.** $5\frac{7}{10}$ in.

practice

a. 7 **b.** 1 **c.** 7 **d.** 5

problem set 7

1. (a) –2 (b) 2 (c) 0 **2.** Additive inverse

3. (a) {1, 2, 3, 4, ...} (b) {0, 1, 2, 3, 4, ...} (c) {..., –3, –2, –1, 0, 1, 2, 3, ...}

4. –4 **5.** 4 **6.** –4 **7.** 4 **8.** $\frac{2200}{100}$ m **9.** $\frac{3000}{(12)(5280)}$ mi **10.** 96 in.

11. 24π ft = 75.36 ft **12.** 8 **13.** –2 **14.** 4 **15.** 5 **16.** 0 **17.** 0 **18.** 3

19. –3 **20.** –9 **21.** 18 **22.** 224 yd **23.** $(26 + 8\pi)$ yd = 51.12 yd **24.** 30

25. $11\frac{5}{8}$ **26.** 20 **27.** $1\frac{1}{4}$ **28.** 443.61413 **29.** 0.1465712 **30.** $22\frac{1}{2}$ cm

practice **a.** 57 in.^{2} **b.** 34 ft^2 **c.** 25π cm^2 = 78.5 cm^2 **d.** $(22 + 2\pi)$ m^2 = 28.28 m^2

problem set 8

1. (a) $-\frac{1}{2}$ (b) $\frac{1}{2}$ (c) 0 **2.** Additive inverse **3.** Right angles **4.** Straight angle

5. 36(12)(2.54) cm **6.** $\frac{44(2.54)}{(100)}$ m **7.** 5 cm **8.** 20 m^2 **9.** 6π in. = 18.84 in.

10. 16π ft^2 = 50.24 ft^2 **11.** 5 **12.** −14 **13.** −17 **14.** 1 **15.** 0 **16.** 2

17. 6 **18.** 15 **19.** 7 **20.** −10 **21.** 130 yd **22.** $(28 + 7\pi)$ yd = 49.98 yd

23. 30 cm^2 **24.** 24 cm^2 **25.** 45 **26.** $1\frac{5}{9}$ **27.** 15

28. 5 **29.** 0.02 **30.** $27\frac{1}{2}$ m

practice **a.** −8 **b.** −6 **c.** −12 **d.** 15 **e.** 2 **f.** −2 **g.** −2 **h.** 8

problem set 9

1. (a) Positive number (b) Negative number **2.** (a) −3 (b) 3 (c) 0 **3.** Opposite

4. 10 **5.** −10 **6.** −10 **7.** 15 **8.** 6 **9.** 2 **10.** −6 **11.** −2 **12.** 8

13. $\frac{320}{(2.54)(12)}$ ft **14.** $\frac{65(100)}{(2.54)}$ in. **15.** 12 in. **16.** 3 ft **17.** 25π yd^2 = 78.5 yd^2

18. −7 **19.** −4 **20.** −3 **21.** −5 **22.** −8 **23.** −2 **24.** 110 cm

25. $(60 + 10\pi)$ cm = 91.4 cm **26.** 54 m^2 **27.** 15 m^2 **28.** 37.04

29. 0.8866 **30.** $14\frac{1}{6}$ km

practice **a.** Undefined **b.** Indeterminate **c.** 16 **d.** 240 **e.** 44(5280)^2 ft^2 **f.** $\frac{3500}{(100)^2}$ m^2

problem set 10

1. Commutative property **2.** (a) Subtraction (b) Addition (c) Division (d) Multiplication

3. (a) $-\frac{1}{3}$ (b) $\frac{1}{3}$ (c) 0 **4.** Opposite **5.** −24 **6.** 24 **7.** 48 **8.** $\frac{1}{2}$ **9.** $\frac{5}{6}$

10. Undefined **11.** 50(2.54) cm **12.** 48(2.54)^2 cm^2 **13.** 5 cm **14.** 120 m^2

15. 16π in. = 50.24 in. **16.** 36π ft^2 = 113.04 ft^2 **17.** −4 **18.** −3 **19.** 8 **20.** 1

21. −10 **22.** −4 **23.** −5 **24.** 150 yd **25.** 140 cm^2 **26.** 20 cm^2

27. $(16 + 2\pi)$ cm^2 = 22.28 cm^2 **28.** $1\frac{1}{3}$ **29.** 3.03 **30.** $6\frac{2}{3}$ m

practice **a.** −102 **b.** 9 **c.** 5 **d.** 3

problem set 11

1. (a) $\frac{1}{2}$ (b) $-\frac{1}{2}$ (c) 1 **2.** Multiplicative inverse **3.** Zero. Division by 0 is undefined.

4. Yes **5.** An acute angle is an angle that is smaller than a right angle.

6. An obtuse angle is an angle that is larger than a right angle and smaller than a straight angle.

7. 25(100) cm **8.** 40(100)^2 cm^2 **9.** $12\frac{1}{4}$ in. **10.** 4 ft **11.** 49π yd^2 = 153.86 yd^2

12. 4 **13.** −20 **14.** 1 **15.** −20 **16.** 22 **17.** 6 **18.** 0 **19.** 0 **20.** −16

21. −12 **22.** 7 **23.** 14 **24.** $\frac{2}{3}$ **25.** 0 **26.** $(38 + 4\pi)$ cm = 50.56 cm

27. 180 m^2 **28.** 35 m^2 **29.** 63 in.^{2} **30.** $18\frac{1}{5}$ ft

practice **a.** 25 **b.** 6 **c.** 26 **d.** Undefined

problem set 12

1. (a) 2 (b) –2 (c) 1 **2.** Multiplicative inverse **3.** Zero. Division by 0 is undefined.
4. No **5.** (a) 90° (b) 180° (c) 360° **6.** 80(12)(2.54) cm **7.** $12(12)^2$ in.^{2}
8. 3 cm **9.** 3 m **10.** –2 **11.** –1 **12.** 28 **13.** 62 **14.** 79 **15.** 33
16. 42 **17.** –40 **18.** –27 **19.** –4 **20.** –31 **21.** 35 **22.** 8 **23.** –12
24. 10 **25.** $-\frac{1}{3}$ **26.** $(26 + 5\pi)$ km = 41.7 km **27.** 144 in.^{2} **28.** 30 in.^{2}
29. 70 ft^2 **30.** 60

practice **a.** 396 **b.** –10 **c.** 36 **d.** 2
e. There are seven negative signs; therefore, the product must be negative.

problem set 13

1. Negative number **2.** (a) $\frac{1}{3}$ (b) $-\frac{1}{3}$ (c) 1 **3.** Reciprocal
4. Zero. Division by 0 is undefined. **5.** Equilateral polygons **6.** 60(5280)(12) in.
7. $125(5280)^2$ ft^2 **8.** 7 cm **9.** 9π m^2 = 28.26 m^2 **10.** –2 **11.** 3 **12.** –12
13. –2 **14.** 18 **15.**16 **16.** –13 **17.** 30 **18.** –16 **19.** –4 **20.** $24\frac{3}{5}$
21. –17 **22.** –20 **23.** $-1\frac{1}{4}$ **24.** Indeterminate **25.** 140 in. **26.** 230 ft^2
27. 64 ft^2 **28.** $\left(48 + \frac{9\pi}{2}\right)$ ft^2 = 62.13 ft^2 **29.** 70 yd^2 **30.** $11\frac{2}{3}$ mi

practice **a.** 4 **b.** –16 **c.** –19 **d.** 44

problem set 14

1. A numerical expression contains only numbers; an algebraic expression may contain numbers and may contain letters.
2. The value of an expression is the number it represents.
3. (a) A variable of an algebraic expression is a letter that represents an unspecified number.
(b) A variable
4. Positive number **5.** Equiangular polygons **6.** $\frac{300(2.54)}{(100)}$ m **7.** $100(3)^2$ ft^2
8. 4 in. **9.** 4 ft **10.** 12 **11.** 14 **12.** –30 **13.** 32 **14.** 13 **15.** –31
16. –70 **17.** –12 **18.** –11 **19.** –7 **20.** –3 **21.** 6 **22.** –126 **23.** –3
24. 12 **25.** $(50 + 9\pi)$ yd = 78.26 yd **26.** 600 cm^2
27. $(20 + 2\pi)$ cm^2 = 26.28 cm^2 **28.** 60 m^2 **29.** 25 **30.** 0.06

practice **a.** 52 in.^{2} **b.** 336 ft^2 **c.** 8800π cm^2 = 27,632 cm^2 **d.** $(228 + 39\pi)$ m^2 = 350.46 m^2

problem set 15

1. (a) Surface area (b) Multiply the perimeter of a base by the height of the right solid.
2. (a) 3 (b) –3 (c) 1 **3.** Reciprocal **4.** Zero. Division by 0 is undefined.
5. 112(12)(2.54) cm **6.** $60(1000)^2$ m^2 **7.** 12 cm **8.** 54 m^2 **9.** 64π km^2 = 200.96 km^2
10. 8 **11.** –4 **12.** 14 **13.** 8 **14.** –9 **15.** –25 **16.** 1 **17.** 5 **18.** –11
19. 13 **20.** –17 **21.** 36 **22.** –21 **23.** Indeterminate **24.** $1\frac{1}{4}$ **25.** 150 in.
26. $\left(70 + \frac{25\pi}{2}\right)$ ft^2 = 109.25 ft^2 **27.** $-\frac{1}{15}$ **28.** $-1\frac{1}{2}$ **29.** $13\frac{3}{4}$ yd **30.** 208 cm^2

practice **a.** -24 **b.** 64 **c.** 18

problem set 16

1. Negative number **2.** (a) Sum (b) Difference (c) Product (d) Quotient

3. Regular polygons **4.** $\frac{100}{2.54}$ in. **5.** $\frac{152}{(2.54)^2}$ in.^{2} **6.** 84 in. **7.** 221 ft^2

8. 81π yd^2 = 254.34 yd^2 **9.** -8 **10.** -2 **11.** -25 **12.** 0 **13.** 48 **14.** 18

15. 30 **16.** 20 **17.** -30 **18.** -3 **19.** -14 **20.** 0 **21.** 14 **22.** $-1\frac{5}{6}$

23. $9\frac{2}{3}$ **24.** $(34 + 10\pi)$ mi = 65.4 mi **25.** 96 cm^2 **26.** $(240 - 36\pi)$ m^2 = 126.96 m^2

27. 100 **28.** $2\frac{3}{4}$ **29.** 28 **30.** 108 km^2

practice **a.** 8 **b.** 8 **c.** $a(b + c) = ab + ac$ **d.** 8 **e.** $2mxy - 6mp$ **f.** $axy + bxy - 2cxy$

problem set 17

1. The coefficient of an expression is any one factor of the expression, or any product of factors of the expression.

2. (a) A numerical coefficient of an expression is a coefficient that consists of numerals only.
(b) A literal coefficient of an expression is a coefficient that consists of variables or letters only.

3. Commutative property for addition **4.** Commutative property for multiplication

5. $\frac{250}{100}$ m **6.** $\frac{5000}{(100)^2}$ m^2 **7.** 16 cm **8.** 5 m **9.** 24 in.^{2} **10.** 35 **11.** -45

12. $mxab - mxb$ **13.** $-4yd - 4ycx$ **14.** $2xa + 2xbc$ **15.** $3ax + 6ay$ **16.** 10

17. 4 **18.** 22 **19.** -60 **20.** 0 **21.** -20 **22.** -2 **23.** -2 **24.** -48

25. $1\frac{3}{8}$ **26.** Undefined **27.** 150 ft **28.** $(40 + 8\pi)$ yd^2 = 65.12 yd^2

29. 12 mi **30.** 24π cm^2 = 75.36 cm^2

practice **a.** $-6xy + x + 4$ **b.** $-3xyz + 3xy$ **c.** $9acy - 2ac$ **d.** $4 + 2x - 9xy$

problem set 18

1. A term of an algebraic expression is a single symbol, a product, or a quotient.

2. Terms of an algebraic expression can be called like terms when they have the same variables in the same or equivalent forms.

3. (a), (c), (d) **4.** $a(b + c) = ab + ac$ **5.** $\frac{1500}{(2.54)(12)}$ ft **6.** $\frac{1250}{(12)^2}$ ft^2 **7.** 16 in.

8. 81π ft^2 = 254.34 ft^2 **9.** $-2xyz + 2xy$ **10.** $-x - 4 + 2xy$ **11.** $4x + 2xy$

12. $3xy - 6mx$ **13.** $2pxy - 6pk$ **14.** 27 **15.** 26 **16.** 0 **17.** 0 **18.** -162

19. -7 **20.** -7 **21.** -7 **22.** -21 **23.** $-1\frac{1}{3}$ **24.** $-\frac{2}{3}$

25. $(36 + 12\pi)$ yd = 73.68 yd **26.** 54 cm^2 **27.** $(64 - 9\pi)$ m^2 = 35.74 m^2 **28.** 3.8

29. 2.03 **30.** 1660 in.^{2}

practice **a.** 4 **b.** -4 **c.** -35 **d.** -4 **e.** -30 **f.** -11 **g.** 144 **h.** -44

problem set 19

1. Like terms **2.** Positive number

3. (a) A right triangle is a triangle that contains one right angle.
(b) An acute triangle is a triangle that contains three acute angles.
(c) An obtuse triangle is a triangle that contains one obtuse angle.
(d) An equiangular triangle is a triangle in which all angles have equal measure.

4. $\frac{10{,}000}{(12)(5280)}$ mi **5.** $\frac{15{,}000}{(5280)^2}$ mi^2 **6.** 4 cm **7.** 63 m^2 **8.** 16 **9.** –16 **10.** 0

11. –18 **12.** 2 **13.** –2 **14.** –288 **15.** –1 **16.** $-6mxy - my$ **17.** $-4a - 8 - 2ax$

18. $\frac{4x - xap}{6}$ **19.** $20pxy - 8cxy$ **20.** $8kc - 4ka + 12km$ **21.** 40 **22.** 64 **23.** 3

24. –9 **25.** Undefined **26.** 142 km **27.** $(96 + 8\pi)$ in.^{2} = 121.12 in.^{2} **28.** $2\frac{3}{5}$

29. 4.002 **30.** 408 ft^2

practice

a. $(400 + 20\pi)$ in.^{3} = 462.8 in.^{3} **b.** 720π ft^3 = 2260.8 ft^3 **c.** 600 cm^3

problem set 20

1. (a), (d) **2.** No **3.** (a) {1, 2, 3, ...} (b) {0, 1, 2, 3, ...} (c) {..., –3, –2, –1, 0, 1, 2, 3, ...}

4. $\frac{50(100)}{(2.54)}$ in. **5.** $\frac{600}{(3)^2}$ yd^2 **6.** 41 in. **7.** 5 ft **8.** 18 **9.** 12 **10.** –16

11. –1 **12.** –3 **13.** –24 **14.** –144 **15.** 22 **16.** $3 + x - 2xy$

17. $-5kpx - kp - 3kx$ **18.** $3x + 12$ **19.** $16x - 8px$ **20.** $2ax - 6px + 4x$ **21.** –27

22. 39 **23.** 5 **24.** 36 **25.** –8 **26.** $(20 + 8\pi)$ cm = 45.12 cm **27.** 60 m^2

28. 60 km^2 **29.** $21\frac{1}{5}$ in. **30.** 450 ft^3

practice

a. x^8y^6 **b.** $x^{11}y^7m^2$ **c.** $-6x^2y^3 - 4xy$ **d.** $2x^6y + 3xy - 5xy^6$

problem set 21

1. Negative number **2.** $a(b + c) = ab + ac$

3. (a) An isosceles triangle is a triangle that has at least two sides of equal length.

(b) An equilateral triangle is a triangle that contains three sides of equal length.

(c) A scalene triangle is a triangle that contains three sides of unequal length.

4. $\frac{366}{(2.54)(12)}$ ft **5.** $\frac{5000}{(1000)^2}$ km^2 **6.** 19 cm **7.** 100π m^2 = 314 m^2 **8.** x^6y^4

9. m^6x^5 **10.** k^6y^7 **11.** a^5b^8 **12.** $5xyz - 3yz$ **13.** $15 - 5k + kx$

14. $8ab^2 - 3ab$ **15.** $x^2 - 4xy + 2x^2y$ **16.** $10 - 20p$ **17.** $3px - 2xy$

18. $3a - 2ab$ **19.** –49 **20.** –1 **21.** 5 **22.** –35 **23.** 16 **24.** 0 **25.** 4

26. 190 in. **27.** 75 ft^2 **28.** $-\frac{3}{4}$ **29.** 0.000048 **30.** 78π yd^2 = 244.92 yd^2

practice

a. 2 satisfies the equation. **b.** –2 and –5 are roots of the equation.

problem set 22

1. (a) An equation is an algebraic statement consisting of two algebraic expressions connected by an equals sign.

(b) A conditional equation is an equation whose truth or falsity depends on the replacement values of the variables within it.

2. Roots **3.** (a), (b), (d) **4.** 72(2.54) cm **5.** $55(100)^2$ cm^2 **6.** 17 cm **7.** 2 m

8. 1 satisfies the equation. **9.** –3 is a root of the equation. **10.** x^5y^5 **11.** $a^{11}b^3$

12. $p^6m^6y^3$ **13.** $4p^3k^4x^5$ **14.** $-4 + py - y$ **15.** $2m - 2 - 3mc$ **16.** $-3xy + 2xy^2$

17. $-8mx^2y + 23x$ **18.** $3ax - 2a$ **19.** $20xy - 8axy$ **20.** $8ax + 2bx - 6mx$

21. –18 **22.** 13 **23.** –5 **24.** –37 **25.** –16 **26.** $(12 + 2\pi)$ km = 18.28 km

27. 24 in.^{2} **28.** $(150 - 25\pi)$ ft^2 = 71.5 ft^2 **29.** 20 **30.** 270 in.^{3}

practice a. 12 b. -11 c. $\frac{7}{8}$ d. $-\frac{41}{42}$

problem set 23

1. To solve an equation means to find the value(s) of the unknown that makes the equation true.
2. Two equations are said to be equivalent if *every* solution of either one of the equations is also a solution of the other equation.

3. $180°$ 4. $150(100)$ cm 5. $116(2.54)^2$ cm^2 6. 11 in. 7. 3 ft 8. 14

9. $-\frac{3}{10}$ 10. $-\frac{15}{8}$ 11. -2 satisfies the equation. 12. 3 is a root of the equation.

13. $m^5x^4y^5$ 14. $m^2x^4y^3$ 15. x^5y^6 16. $-9 + 2x$ 17. -5 18. $4ax + 8bx$

19. $6x + 12$ 20. $4mypx - 12abpx$ 21. 7 22. -30 23. -8 24. -16 25. $-\frac{5}{6}$

26. $(26 + 12\pi)$ yd $= 63.68$ yd 27. 325 cm^2 28. $10\frac{1}{2}$ 29. $-1\frac{1}{2}$ 30. 24 m^2

práctice a. 45 b. 10 c. 5 d. $\frac{45}{4}$

problem set 24

1. Positive number 2. (b), (c) 3. (a) $60°$ (b) $60°$ 4. $280(5280)(12)$ in.

5. $45(12)^2$ in.^{2} 6. 216 cm^2 7. 6 m 8. 2 9. 5 10. $\frac{9}{8}$ 11. -2 12. $\frac{17}{10}$

13. 10 14. $\frac{3}{2}$ 15. 15 16. 2 17. 5 satisfies the equation. 18. $m^2p^2x^4y^6$

19. $3p^6x^3y^3$ 20. $-7a + 8$ 21. $2mx^2y - 2mxy^2$ 22. $3axy - 5pxy$ 23. 4

24. 2 25. 24 26. -21 27. 40 km 28. 76 in.^{2} 29. $(104 - 16\pi)$ ft$^2 = 53.76$ ft^2

30. 1520 cm^3

practice a. 2 b. $-\frac{2}{63}$ c. 0.13 d. 0.8

problem set 25

1. (a), (d) 2. (a) Subtraction (b) Addition (c) Division (d) Multiplication

3. $\frac{508}{2.54}$ in. 4. $\frac{15{,}000}{(100)^2}$ m^2 5. 12 cm 6. 8 7. $\frac{1}{6}$ 8. $\frac{5}{3}$ 9. $\frac{2}{3}$ 10. 4

11. $\frac{14}{3}$ 12. -6 13. 8 14. 0.7 15. (a) 1 (b) 1 (c) Yes (d) Yes

16. -2 and 4 are roots of the equation. 17. k^4x^7y 18. $a^8b^5x^5$ 19. $c - 4$

20. $-a^2x^2$ 21. $8xy - 12x + 8ax$ 22. -3 23. 19 24. -43 25. $-\frac{4}{5}$

26. $\left(15 + \frac{5\pi}{2}\right)$ m $= 22.85$ m 27. 264 km^2 28. 22 29. 0.02 30. 468 in.^{2}

practice a. $\frac{1}{2}$ b. $\frac{3}{5}$ c. 2 d. -6

problem set 26

1. Negative number 2. (a) $\{1, 2, 3, \ldots\}$ (b) $\{0, 1, 2, 3, \ldots\}$ (c) $\{\ldots, -3, -2, -1, 0, 1, 2, 3, \ldots\}$

3. $\frac{1000}{100}$ m 4. $\frac{525}{(2.54)^2}$ in.^{2} 5. 90 in.^{2} 6. 4 ft 7. 4 8. 7 9. $\frac{6}{35}$

10. $\frac{11}{3}$ 11. $-\frac{1}{14}$ 12. 0.4 13. -2 14. -3 15. $\frac{9}{5}$

16. (a) 10 (b) 10 (c) Yes (d) Yes 17. -7 satisfies the equation. 18. m^6y^9

19. $a^3k^{10}m^6$ 20. $-2a + ax - 3$ 21. $5a^2bc - bc$ 22. $28 - 12x^2$ 23. -14