Grade 9 Mathematics Preparation Solution Booklet

The following worksheets are designed to help students practice and review key concepts and skills from previous mathematics courses that are needed for success with the new concepts introduced in high school.

Adding and Subtracting Fractions (A) Answers

Find the value of each expression in lowest terms.

1. $\dfrac{7}{4} - \dfrac{8}{5}$
$= \dfrac{3}{20}$

5. $\dfrac{3}{2} - \dfrac{9}{7}$
$= \dfrac{3}{14}$

9. $\dfrac{4}{3} - \dfrac{2}{5}$
$= \dfrac{14}{15}$

2. $\dfrac{23}{2} + \dfrac{9}{4}$
$= \dfrac{55}{4} = 13\dfrac{3}{4}$

6. $\dfrac{7}{10} + \dfrac{2}{5}$
$= \dfrac{11}{10} = 1\dfrac{1}{10}$

10. $\dfrac{5}{2} + \dfrac{2}{3}$
$= \dfrac{19}{6} = 3\dfrac{1}{6}$

3. $\dfrac{8}{3} - \dfrac{3}{2}$
$= \dfrac{7}{6} = 1\dfrac{1}{6}$

7. $\dfrac{14}{5} - \dfrac{4}{3}$
$= \dfrac{22}{15} = 1\dfrac{7}{15}$

11. $\dfrac{9}{8} + \dfrac{5}{6}$
$= \dfrac{47}{24} = 1\dfrac{23}{24}$

4. $\dfrac{5}{2} - \dfrac{13}{12}$
$= \dfrac{17}{12} = 1\dfrac{5}{12}$

8. $\dfrac{17}{7} - \dfrac{5}{3}$
$= \dfrac{16}{21}$

12. $\dfrac{9}{7} - \dfrac{5}{6}$
$= \dfrac{19}{42}$

Adding and Subtracting Mixed Fractions (A) Answers

Find the value of each expression in lowest terms.

1. $2\frac{1}{5} + 1\frac{3}{4}$
$= \frac{79}{20} = 3\frac{19}{20}$

5. $1\frac{1}{2} + 2\frac{3}{5}$
$= \frac{41}{10} = 4\frac{1}{10}$

9. $3\frac{1}{2} - 1\frac{1}{2}$
$= 2$

2. $3\frac{1}{2} - 2\frac{2}{3}$
$= \frac{5}{6}$

6. $3\frac{1}{2} - 2\frac{5}{9}$
$= \frac{17}{18}$

10. $5\frac{1}{2} + 5\frac{1}{4}$
$= \frac{43}{4} = 10\frac{3}{4}$

3. $3\frac{1}{2} - 3\frac{1}{2}$
$= 0$

7. $2\frac{3}{4} + 1\frac{1}{5}$
$= \frac{79}{20} = 3\frac{19}{20}$

11. $1\frac{10}{11} - 1\frac{1}{3}$
$= \frac{19}{33}$

4. $5\frac{3}{4} - 5\frac{1}{4}$
$= \frac{1}{2}$

8. $3\frac{1}{4} - 2\frac{3}{8}$
$= \frac{7}{8}$

12. $1\frac{5}{12} + 3\frac{1}{3}$
$= \frac{19}{4} = 4\frac{3}{4}$

Multiplying and Dividing Fractions (A) Answers

Find the value of each expression in lowest terms.

1. $\dfrac{1}{2} \times \dfrac{5}{4}$
$= \dfrac{5}{8}$

6. $\dfrac{1}{4} \times \dfrac{5}{3}$
$= \dfrac{5}{12}$

11. $\dfrac{10}{3} \times \dfrac{11}{6}$
$= \dfrac{55}{9} = 6\dfrac{1}{9}$

2. $\dfrac{1}{6} \div \dfrac{8}{11}$
$= \dfrac{11}{48}$

7. $\dfrac{11}{2} \div \dfrac{1}{2}$
$= 11$

12. $\dfrac{1}{2} \div \dfrac{1}{2}$
$= 1$

3. $\dfrac{1}{3} \div \dfrac{13}{9}$
$= \dfrac{3}{13}$

8. $\dfrac{4}{3} \div \dfrac{11}{12}$
$= \dfrac{16}{11} = 1\dfrac{5}{11}$

13. $\dfrac{14}{9} \times \dfrac{7}{10}$
$= \dfrac{49}{45} = 1\dfrac{4}{45}$

4. $\dfrac{13}{4} \div \dfrac{1}{2}$
$= \dfrac{13}{2} = 6\dfrac{1}{2}$

9. $\dfrac{1}{3} \times \dfrac{20}{9}$
$= \dfrac{20}{27}$

14. $\dfrac{15}{8} \times \dfrac{7}{6}$
$= \dfrac{35}{16} = 2\dfrac{3}{16}$

5. $\dfrac{17}{6} \div \dfrac{3}{5}$
$= \dfrac{85}{18} = 4\dfrac{13}{18}$

10. $\dfrac{13}{7} \times \dfrac{14}{11}$
$= \dfrac{26}{11} = 2\dfrac{4}{11}$

15. $\dfrac{3}{2} \div \dfrac{4}{9}$
$= \dfrac{27}{8} = 3\dfrac{3}{8}$

Multiplying and Dividing Mixed Fractions (A) Answers

Find the value of each expression in lowest terms.

1. $3\frac{2}{7} \div 1\frac{1}{4}$
$= \frac{92}{35} = 2\frac{22}{35}$

6. $1\frac{1}{3} \times 1\frac{2}{3}$
$= \frac{20}{9} = 2\frac{2}{9}$

11. $1\frac{3}{8} \div 1\frac{1}{12}$
$= \frac{33}{26} = 1\frac{7}{26}$

2. $1\frac{2}{3} \div 3\frac{1}{3}$
$= \frac{1}{2}$

7. $1\frac{1}{3} \times 2\frac{1}{5}$
$= \frac{44}{15} = 2\frac{14}{15}$

12. $2\frac{7}{8} \div 5\frac{1}{2}$
$= \frac{23}{44}$

3. $2\frac{1}{4} \div 1\frac{1}{2}$
$= \frac{3}{2} = 1\frac{1}{2}$

8. $2\frac{1}{7} \div 2\frac{1}{2}$
$= \frac{6}{7}$

13. $3\frac{2}{3} \div 1\frac{1}{6}$
$= \frac{22}{7} = 3\frac{1}{7}$

4. $6\frac{1}{2} \div 2\frac{2}{3}$
$= \frac{39}{16} = 2\frac{7}{16}$

9. $1\frac{3}{11} \div 2\frac{1}{3}$
$= \frac{6}{11}$

14. $1\frac{3}{8} \times 3\frac{1}{3}$
$= \frac{55}{12} = 4\frac{7}{12}$

5. $2\frac{1}{10} \div 2\frac{3}{5}$
$= \frac{21}{26}$

10. $3\frac{1}{2} \div 2\frac{3}{4}$
$= \frac{14}{11} = 1\frac{3}{11}$

15. $1\frac{4}{11} \div 1\frac{1}{4}$
$= \frac{12}{11} = 1\frac{1}{11}$

Multiplying Fractions (A) Answers

Find the value of each expression.

1. $\dfrac{5}{6} \times \dfrac{1}{2}$
$= \dfrac{5}{12}$

5. $\dfrac{7}{9} \times \dfrac{1}{2}$
$= \dfrac{7}{18}$

9. $\dfrac{1}{2} \times \dfrac{1}{3}$
$= \dfrac{1}{6}$

2. $\dfrac{4}{9} \times \dfrac{2}{3}$
$= \dfrac{8}{27}$

6. $\dfrac{5}{11} \times \dfrac{1}{3}$
$= \dfrac{5}{33}$

10. $\dfrac{1}{8} \times \dfrac{1}{4}$
$= \dfrac{1}{32}$

3. $\dfrac{3}{5} \times \dfrac{3}{4}$
$= \dfrac{9}{20}$

7. $\dfrac{1}{3} \times \dfrac{5}{6}$
$= \dfrac{5}{18}$

11. $\dfrac{1}{2} \times \dfrac{5}{6}$
$= \dfrac{5}{12}$

4. $\dfrac{5}{6} \times \dfrac{1}{3}$
$= \dfrac{5}{18}$

8. $\dfrac{1}{2} \times \dfrac{1}{6}$
$= \dfrac{1}{12}$

12. $\dfrac{1}{3} \times \dfrac{4}{5}$
$= \dfrac{4}{15}$

Dividing Fractions (A) Answers

Find the value of each expression in lowest terms.

1. $\dfrac{1}{5} \div \dfrac{2}{3}$

   $= \dfrac{3}{10}$

2. $\dfrac{1}{3} \div \dfrac{7}{10}$

   $= \dfrac{10}{21}$

3. $\dfrac{1}{2} \div \dfrac{2}{3}$

   $= \dfrac{3}{4}$

4. $\dfrac{1}{5} \div \dfrac{2}{7}$

   $= \dfrac{7}{10}$

5. $\dfrac{1}{3} \div \dfrac{3}{4}$

   $= \dfrac{4}{9}$

6. $\dfrac{2}{9} \div \dfrac{3}{4}$

   $= \dfrac{8}{27}$

7. $\dfrac{1}{3} \div \dfrac{3}{4}$

   $= \dfrac{4}{9}$

8. $\dfrac{1}{7} \div \dfrac{1}{5}$

   $= \dfrac{5}{7}$

9. $\dfrac{4}{9} \div \dfrac{1}{2}$

   $= \dfrac{8}{9}$

10. $\dfrac{1}{4} \div \dfrac{7}{9}$

    $= \dfrac{9}{28}$

11. $\dfrac{3}{7} \div \dfrac{5}{9}$

    $= \dfrac{27}{35}$

12. $\dfrac{1}{4} \div \dfrac{8}{9}$

    $= \dfrac{9}{32}$

Perform the operations in the correct order.

1. $2 \times 5 - 7$
$= 3$

2. $9 \times (3 + (-1))$
$= 18$

3. $-8 - 5 + (-5)$
$= -18$

4. $-3 + 6 + (-9)$
$= -6$

5. $(-5) \times (-1) - (-1)$
$= 6$

6. $5 \div (-1)^4$
$= 5$

7. $(-1)^{(-2) \times (-8)}$
$= 1$

8. $-10 - 2 \div (-2)$
$= -9$

9. $-4 + (-9) \div (-1)$
$= 5$

10. $(7 + (-4)) \div (-3)$
$= -1$

11. $8 \div 2 - (-3)$
$= 7$

12. $4 \times (-1)^2$
$= 4$

13. $9 + 2 - (-5)$
$= 16$

14. $1 \times 1 + (-9)$
$= -8$

15. $-1 - (-9 + (-3))$
$= 11$

Order of Operations (A) Answers

Perform the operations in the correct order.

1. $(10 \div 2 - 3)^2$
$= 4$

2. $9 + (6 \div 6)^9$
$= 10$

3. $(5 - 8 \div 8) \times 4$
$= 16$

4. $5 \times (6 \div 6)^3$
$= 5$

5. $(2 \div 2 \times 4)^2$
$= 16$

6. $4 + 10 - (5 + 7)$
$= 2$

7. $8 \times (8 - 8) \div 9$
$= 0$

8. $5 + 6 - (8 - 6)$
$= 9$

9. $6 \div 1^{3 \div 1}$
$= 6$

10. $2^{8-6} + 9$
$= 13$

11. $(6 - 4)^{6-4}$
$= 4$

12. $3^2 + 4 \div 2$
$= 11$

13. $2^{9 \div (8-5)}$
$= 8$

14. $1^{6 - 3 \div 3}$
$= 1$

15. $4^{2 \div 1} + 2$
$= 18$

Multiplying a Monomial by a Binomial (A) Answers

Simplify each expression.

1. $-3n^3(-8n^3 - 3n^2)$
   $= 24n^6 + 9n^5$

2. $9a^5(-8a^4 + 2a^3)$
   $= -72a^9 + 18a^8$

3. $9h^4(-9h - 9)$
   $= -81h^5 - 81h^4$

4. $4b(9b^5 + 7b^4)$
   $= 36b^6 + 28b^5$

5. $-8v^3(3v^5 + 3v^4)$
   $= -24v^8 - 24v^7$

6. $-2a^2(-8a^2 + 9a)$
   $= 16a^4 - 18a^3$

7. $7a^3(-3a^4 + 6a^3)$
   $= -21a^7 + 42a^6$
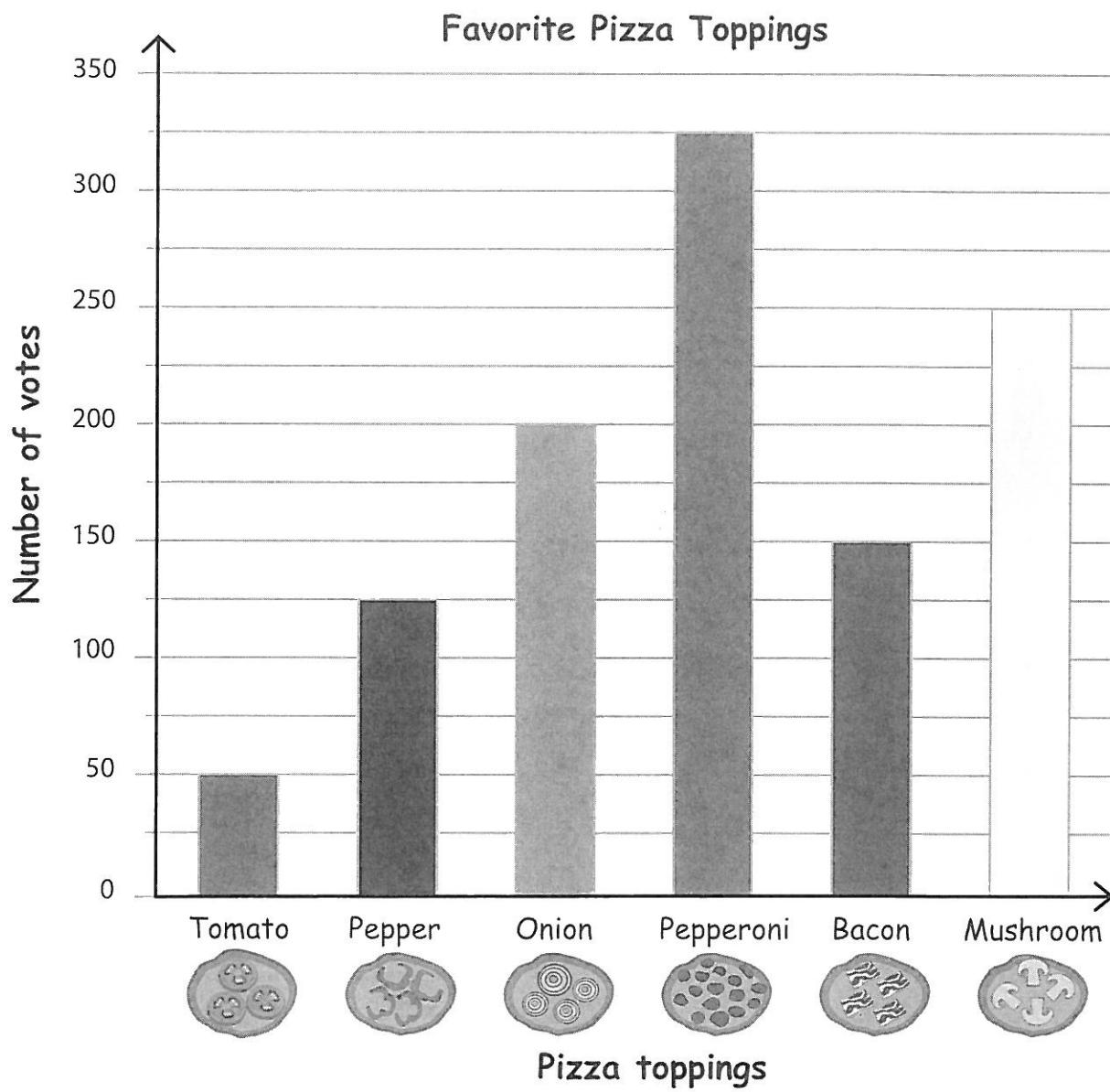
8. $-6p(2p^3 - 4p^2)$
   $= -12p^4 + 24p^3$

9. $-2p^3(-4p^4 - 7p^3)$
   $= 8p^7 + 14p^6$

10. $3x^3(-2x^5 + 9x^4)$
    $= -6x^8 + 27x^7$

Bar Graph - Pizza Toppings

Good Time Pizza Makers are best in making pizzas with six different toppings. They took a survey about customers' favorite toppings and recorded the results in a bar graph. Use the bar graph to answer the questions.

Favorite Pizza Toppings

Number of votes

350
300
250
200
150
100
50
0

Tomato   Pepper   Onion   Pepperoni   Bacon   Mushroom

Pizza toppings

1) Which is the most popular topping? _____ Pepperoni _____

2) How many customers have chosen either tomato or pepper toppings? _____ 175 _____

3) If 75 more customers prefer bacon, which one will top the chart, bacon or onion? _____ Bacon _____

4) Which topping has 250 votes? _____ Mushroom _____

5) List the toppings in order from most popular to least popular.

Pepperoni, Mushroom, Onion, Bacon, Pepper and Tomato

Solution

Scatter Plots and Line of Best Fit Worksheet
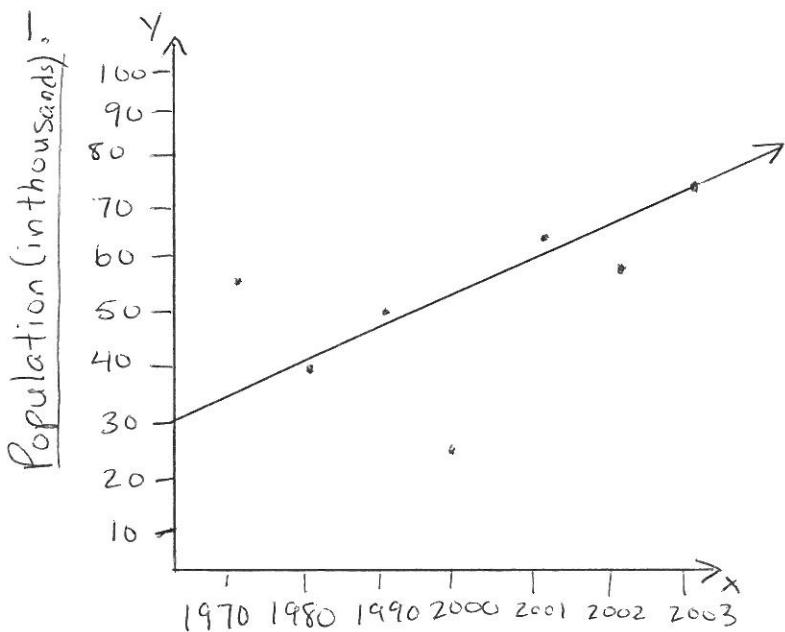
Analyse the following table and do the following questions

Year	Population (in thousands)
1970	55
1980	40
1990	50
2000	25
2001	65
2002	60
2003	75

1. Sketch a scatter plot of the table above.
2. Draw the line of best fit.
3. Conclude if it's a positive correlation or negative correlation.
   *(**HINT**: Positive correlation is increasing and negative correlation is decreasing)*

SHOW ALL WORK UNDER THE LISTED QUESTIONS.

3. Positive Correlation because the line of best fit is increasing.

Solution

Rates Worksheet

1. Calculate each unit rate.

   a) A printer prints 34 pages in 4 minutes.

   $$\text{Unit rate} = \frac{34 \text{ pages}}{4 \text{ minutes}} = 8.5 \text{ pages/minute}$$

   b) Dog food costs $16 for a 4-kg bag.

   $$\text{Unit rate} = \frac{\$16}{4\text{-kg}} = \$4/kg$$

   c) A car travelled 1250 km in 15 hours.

   $$\text{Unit rate} = \frac{1250 \text{ km}}{15 \text{ hours}} = 83.3 \text{ km/hour}.$$

   d) A breakfast cereal costs $3.50 for 650 g.

   $$\text{Unit rate} = \frac{650 \text{ g}}{\$3.50} = 185.71 \text{ g}/\$1$$

   e) A recipe calls for 750 mL of flour to make 30 carrot muffins.

   $$\text{Unit rate} = \frac{750 \text{ mL}}{30 \text{ carrot muffins}} = 25 \text{ mL of flour/carrot muffin}.$$

Simplifying Expressions (A) Answers

Simplify each expression.

1. $2x^2 - 10x^2 + 9x$
$= -8x^2 + 9x$

2. $7a^2 + 8a + 9a^2$
$= 16a^2 + 8a$

3. $5 \cdot 5x^2 \cdot (-5x)$
$= -125x^3$

4. $-1 - a^2 - 4a^2$
$= -5a^2 - 1$

5. $-x^2 - 1 - 5x^2$
$= -6x^2 - 1$

6. $-1 + 1 - c^2$
$= -c^2$

7. $2 + 8z^2 + 1$
$= 8z^2 + 3$

8. $x^2 - x - x$
$= x^2 - 2x$
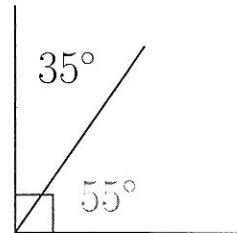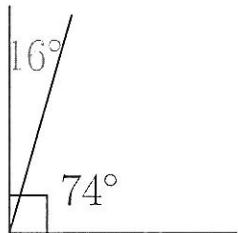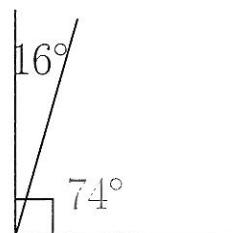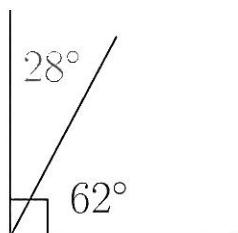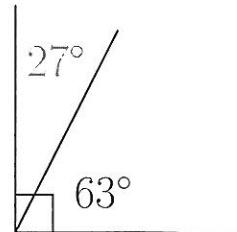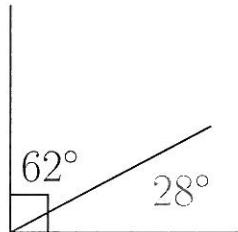
9. $-\dfrac{u^2}{-u^2} \cdot \left(-u^2\right)$
$= -u^2$

10. $-a \cdot \dfrac{7a^2}{a}$
$= -7a^2$

Complementary Angles (A) Answers

Find the complementary angle measurement for each measured angle.

62° 28°

27° 63°

28° 62°

16° 74°

16° 74°

35° 55°

Supplementary Angles (A) Answers

Find the supplementary angle measurement for each measured angle.

129° 51°

135° 45°

156° 24°

18° 162°

151° 29°

16° 164°

Percent Calculations (A) Answers

Calculate the percent or value requested.

1. What percent of 200 is 28?

    14%

2. What percent of 950 is 931?

    98%

3. What percent of 700 is 364?

    52%

4. What percent of 100 is 13?

    13%

5. What percent of 700 is 273?

    39%

6. What percent of 575 is 161?

    28%

7. What percent of 1,000 is 200?

    20%

8. What percent of 300 is 111?

    37%

9. What percent of 400 is 68?

    17%

10. What percent of 500 is 95?

    19%

Calculate the percent or value requested.

1. What percent of 642 is 321?

    50%

2. What percent of 520 is 78?

    15%

3. What percent of 270 is 27?

    10%

4. What percent of 260 is 195?

    75%

5. What percent of 718 is 359?

    50%

6. What percent of 921 is 307?

    33⅓%

7. What percent of 412 is 103?

    25%

8. What percent of 908 is 227?

    25%

9. What percent of 232 is 174?

    75%

10. What percent of 960 is 192?

    20%
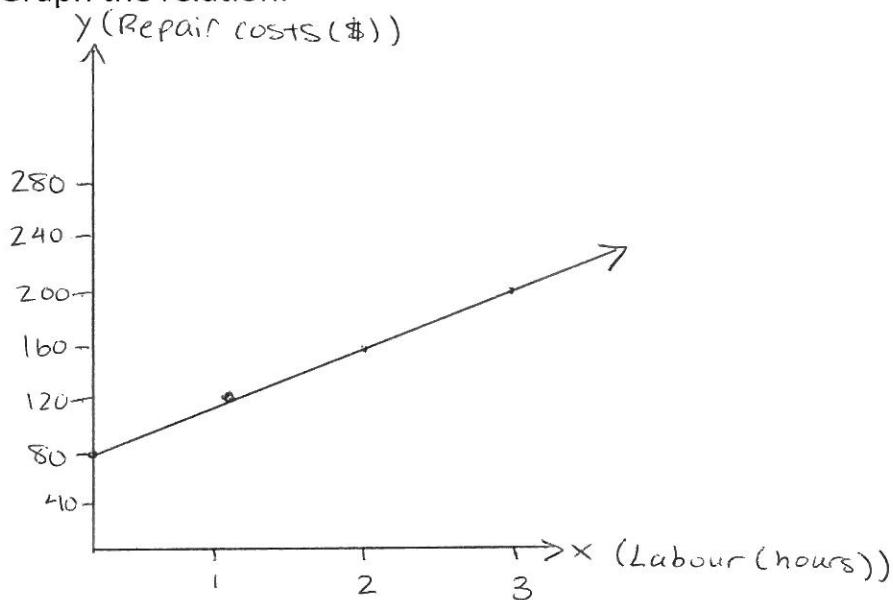
Linear Relations Worksheet

1. John makes house calls to repair home computers. The following is a partial list of his repair charges.

Labour(hours)	Repair costs($)
1	120
2	160
3	200

a) Graph the relation.

b) What is the repair cost for a 6 hour job?

$320 (by extrapolating the graph)

*Note: Extrapolating means to infer values of a variable in an   *
unobserved interval from values within an already observed interval.
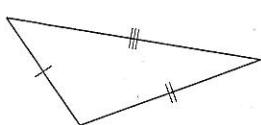
c) Identify the coordinates of the point where the graph crosses the vertical axis (or y-axis). Explain the significance of this point.

The point where the graph crosses the y-axis is (0,80).
This is the flate rate for getting a repair. In this case the flat rate is $80.
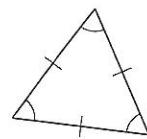
Classifying Triangles (A) Answers
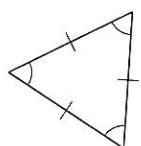
Classify each triangle using its side properties.
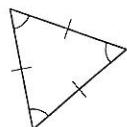
scalene
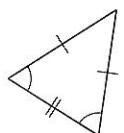
equilateral
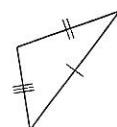
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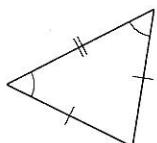
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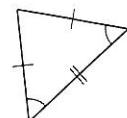
isosceles
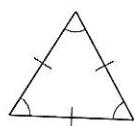
scalene
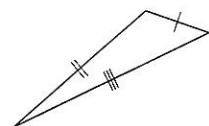
isosceles

isosceles
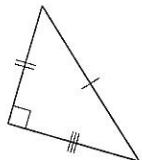
equilateral

scalene

Classifying Triangles (A) Answers
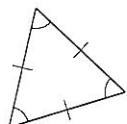
Classify each triangle using its side and angle properties.
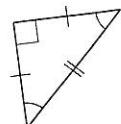
scalene, right
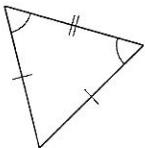
isosceles, right

equilateral, acute
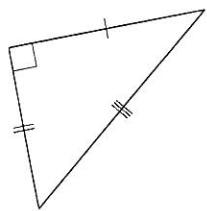
isosceles, right
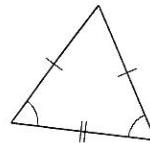
isosceles, acute
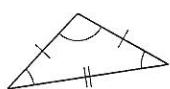
scalene, obtuse
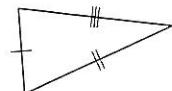
scalene, right

isosceles, acute
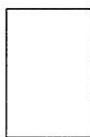
isosceles, obtuse

scalene, acute

Classifying Quadrilaterals (A) Answers
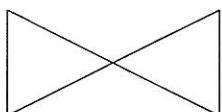
Identify each quadrilateral.
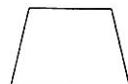
rectangle
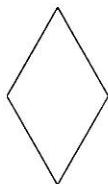
right-angled trapezoid
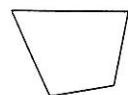
bowtie
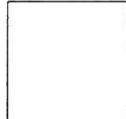
isosceles trapezoid
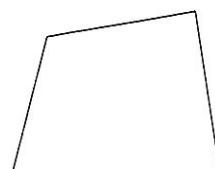
rhombus
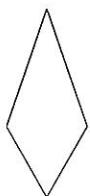
quadrilateral
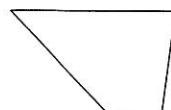
square

quadrilateral
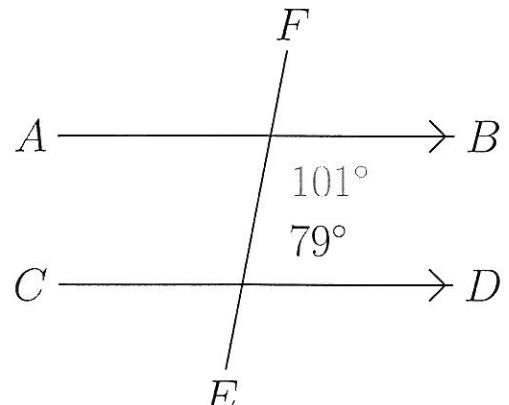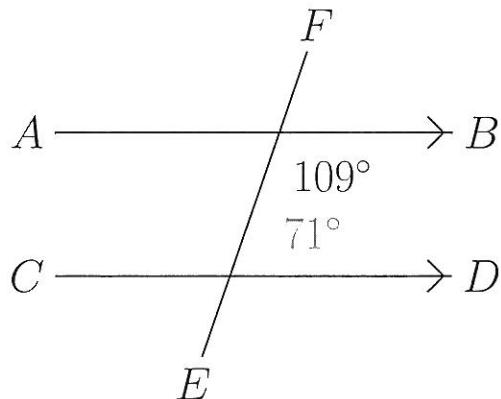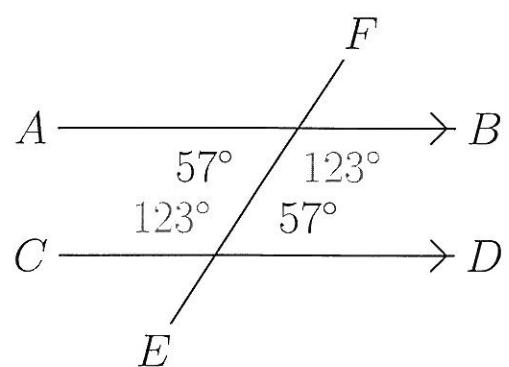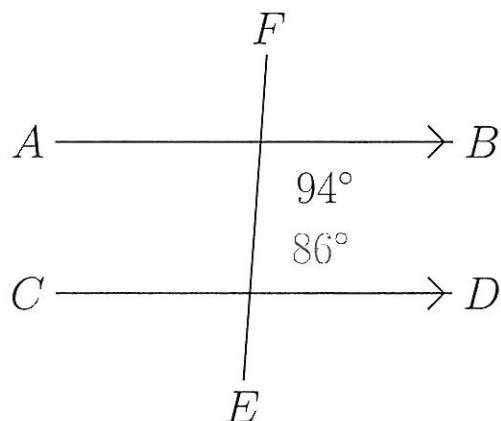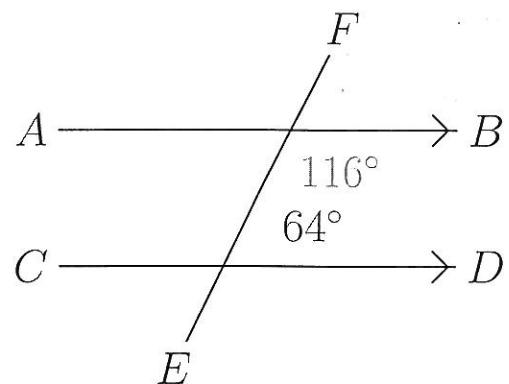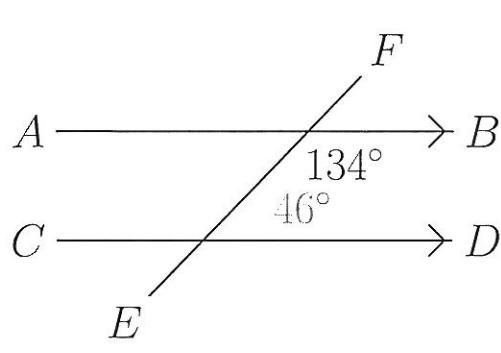
kite

trapezoid
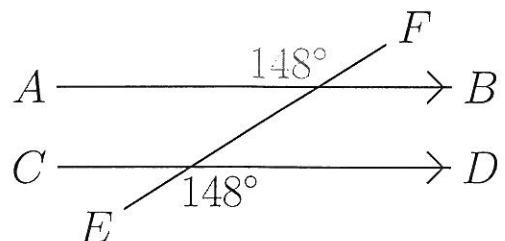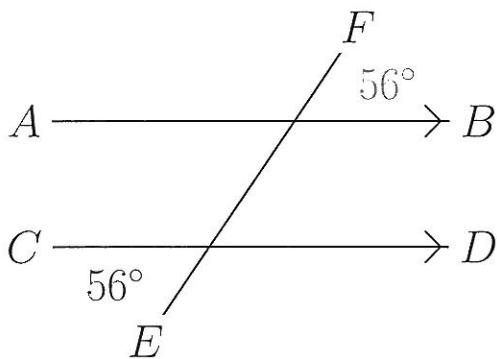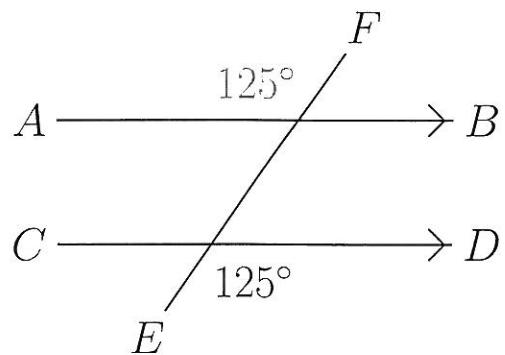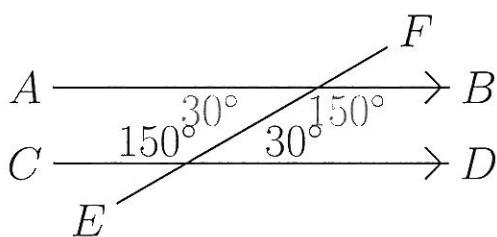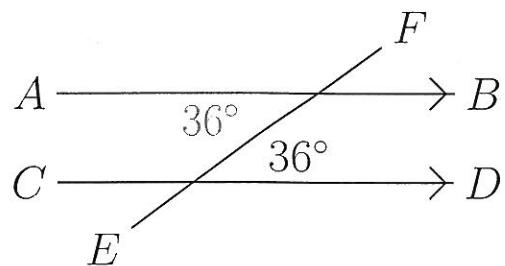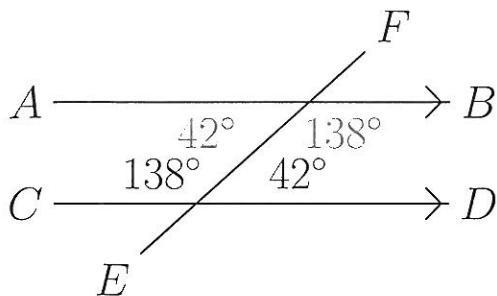
Co-Interior Angles (A) Answers

Find the co-interior angle measurements for the measured angles.

F

A ————————————→ B
             134°
       46°
C ————————————→ D

E

F

A ————————————→ B
             116°
       64°
C ————————————→ D

E

F

A ————————————→ B
             94°
       86°
C ————————————→ D

E

F

A ————————————→ B
       57°   123°
   123°   57°
C ————————————→ D

E

F

A ————————————→ B
            109°
   71°
C ————————————→ D

E

F

A ————————————→ B
   101°
   79°
C ————————————→ D

E
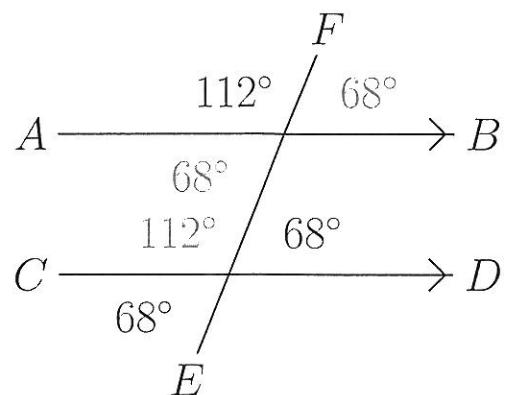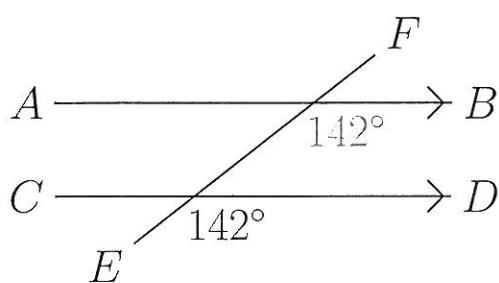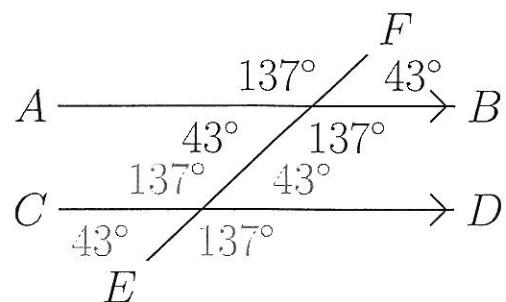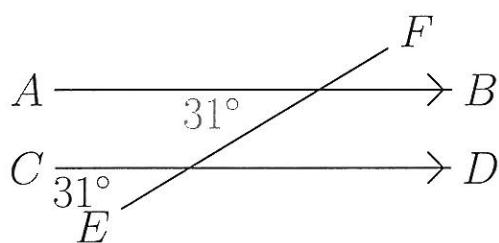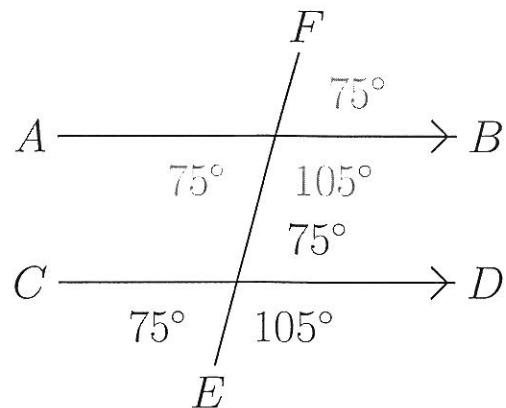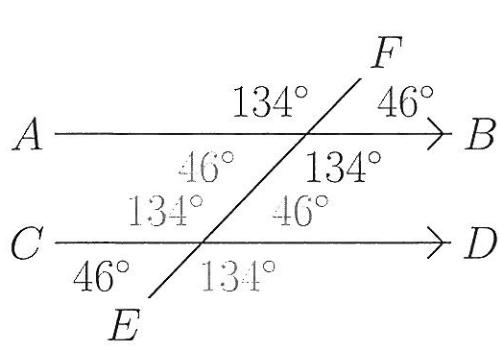
Alternate Angles (A) Answers

Find the alternate angle measurements for the measured angles.

A → B 42° 138°
C → D 138° 42°
F, E

A → B 36° 36°
C → D
F, E

A → B 30° 150°
C → D 150° 30°
F, E

A → B 125°
C → D 125°
F, E

A → B 56°
C → D
F, E 56°

A → B 148°
C → D 148°
F, E
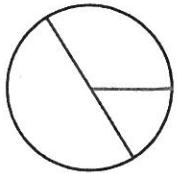
Corresponding Angles (A) Answers

Find the corresponding angle measurements for the measured angles.

Diagram 1:

A ——— 134° F 46° ——→ B
46° 134°
C 134° 46° ——→ D
46° 134°
E

Diagram 2:

F 75°
A ——————————→ B
75° 105°
75°
C ——————————→ D
75° 105°
E

Diagram 3:

A ——————— F ——→ B
31°
C ——————→ D
31°
E

Diagram 4:

A ——— 137° F 43° ——→ B
43° 137°
C 137° 43° ——→ D
43° 137°
E

Diagram 5:

A ——————— F ——→ B
142°
C ——————→ D
142°
E

Diagram 6:

F
A ——— 112° 68° ——→ B
68°
C 112° 68° ——→ D
68°
E

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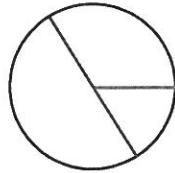
Circumference and Area of Circles (A) Answers
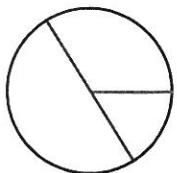
Find the circumference and area of each circle to one decimal place.

d = 7.9 cm
C = 24.8 cm
A = 49 sq. cm

d = 6.3 cm
C = 19.8 cm
A = 31.2 sq. cm

r = 7.3 cm
C = 45.9 cm
A = 167.4 sq. cm

d = 5.5 cm
C = 17.3 cm
A = 23.8 sq. cm

d = 9.5 mm
C = 29.8 mm
A = 70.9 sq. mm

r = 1 yd
C = 6.3 yd
A = 3.1 sq. yd

r = 9.7 m
C = 60.9 m
A = 295.6 sq. m

d = 7 m
C = 22 m
A = 38.5 sq. m
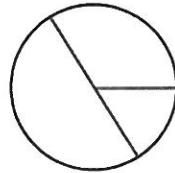
r = 0.5 m
C = 3.1 m
A = 0.8 sq. m

r = 2.4 cm
C = 15.1 cm
A = 18.1 sq. cm

d = 0.9 mi
C = 2.8 mi
A = 0.6 sq. mi

r = 8 in
C = 50.3 in
A = 201.1 sq. in

Area and Perimeter of Various Shapes (A) Answers

Find the area and perimeter of each shape.
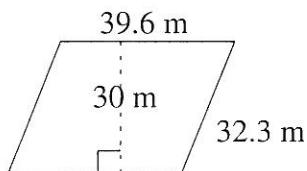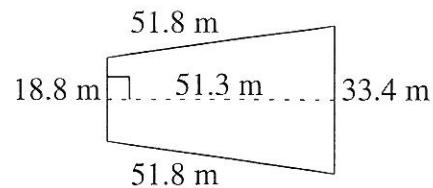
41.1 m

35.1 m 41.1 m 34.3 m

41.1 m

A = 1426.17 m²
P = 151.6 m

77.6 ft

51.7 ft

A = 4011.92 ft²
P = 258.6 ft

39.6 m

30 m

32.3 m

A = 1188.0 m²
P = 143.8 m

51.8 m

18.8 m 51.3 m 33.4 m

51.8 m

A = 1338.93 m²
P = 155.8 m

h = 70.9 mi

70.9 mi 82.6 mi

44.6 mi

A = 1581.07 mi²
P = 198.1 mi

h = 98.1 yd

103.3 yd 103.8 yd

66.1 yd
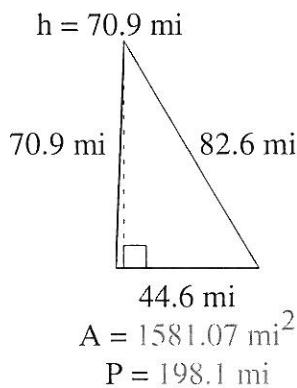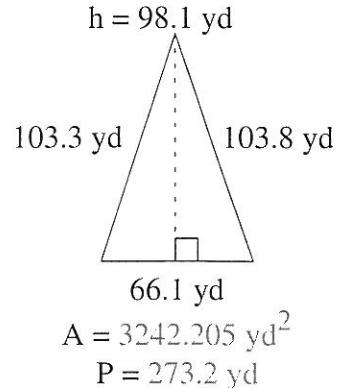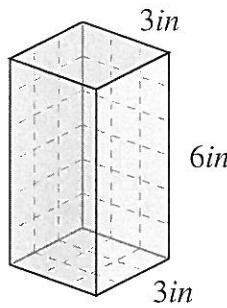
A = 3242.205 yd²
P = 273.2 yd
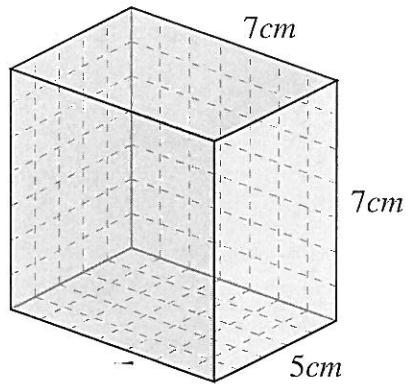
Volume and surface area of prisms (A) Answers

Find the volume and surface area of each prism.
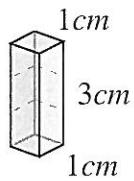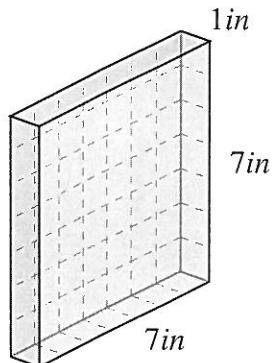
3in
6in
3in
3in

V: 3in x 3 x 6in = 54in^3

SA: 2 x (9 + 18 + 18)in = 90in^2

7cm
7cm
5cm

V: 5cm x 7 x 7cm = 245cm^3

SA: 2 x (35 + 49 + 35)cm = 238cm^2

1cm
3cm
1cm

V: 1cm x 1 x 3cm = 3cm^3

SA: 2 x (1 + 3 + 3)cm = 14cm^2

1in
7in
7in

V: 7in x 1 x 7in = 49in^3
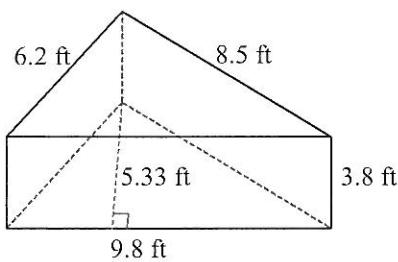
SA: 2 x (7 + 7 + 49)in = 126in^2

Volume and Surface Area of Triangular Prisms Answer (A)
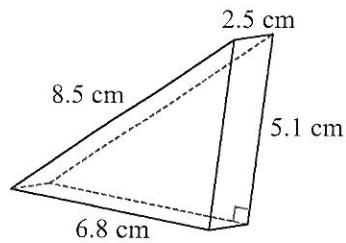
Instructions: Find the volume and surface area for each triangular prism.

**Formula: Volume (V) = 0.5 x *bhl*, Surface Area (A) = *bh+(s1+s2+s3)l***

1)

6.2 ft   8.5 ft

5.33 ft   3.8 ft

9.8 ft

V = 0.5x9.8x5.33x3.8 = 99.2 ft^3
A = (9.8x5.33)+((9.8+6.2+8.5)x3.8) = 145.3 ft^2

2)

2.5 cm

8.5 cm   5.1 cm

6.8 cm

V = 0.5x6.8x5.1x2.5 = 43.4 cm^3
A = (6.8x5.1)+((6.8+5.1+8.5)x2.5) = 85.7 cm^2

3)

5.3 mi

3.3 mi

2.3 mi   1.26 mi

3.6 mi

V = 0.5x5.3x1.26x3.3 = 11.0 mi^3
A = (5.3x1.26)+((5.3+3.6+2.3)x3.3) = 43.6 mi^2

4)

5.4 m   4.3 m

2.4 m   4.1 m

8.4 m

V = 0.5x8.4x2.40x4.1 = 41.3 m^3
A = (8.4x2.40)+((8.4+5.4+4.3)x4.1) = 94.4 m^2

5)

3.6 km

7.7 km

8.5 km

1.8 km

V = 0.5x3.6x7.7x1.8 = 24.9 km^3
A = (3.6x7.7)+((3.6+7.7+8.5)x1.8) = 63.4 km^2

6)

8.1 yd   2.1 yd

5.1 yd

2.02 yd

7.8 yd
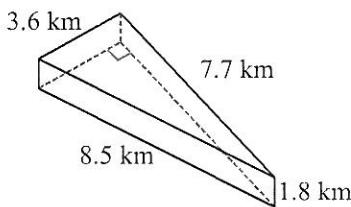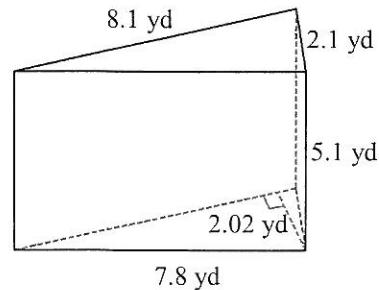
V = 0.5x8.1x2.02x5.1 = 41.7 yd^3
A = (8.1x2.02)+((8.1+2.1+7.8)x5.1) = 108.2 yd^2

Volume and Surface Area of Cylinders Answer (A)
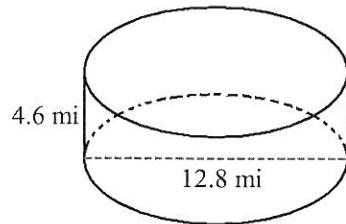
Instructions: Find the volume and surface area for each cylinder.

Formula: Volume (V) = $\pi r^2 h$, Surface Area (A) = $2\pi r(r+h)$, $\pi = 3.14$

1)

5.8 cm

6.8 cm

V = 3.14x6.8x6.8x5.8 = 842.1 cm^3
A = (2x3.14x6.8)x(6.8+5.8) = 538.1 cm^2

2)

4.6 mi

12.8 mi

V = 3.14x6.4x6.4x4.6 = 591.6 mi^3
A = (2x3.14x6.4)x(6.4+4.6) = 442.1 mi^2

3)

8.9 km

3.9 km

V = 3.14x3.9x3.9x8.9 = 425.1 km^3
A = (2x3.14x3.9)x(3.9+8.9) = 313.5 km^2

4)

2.6 yd

1.0 yd

V = 3.14x0.5x0.5x2.6 = 2.0 yd^3
A = (2x3.14x0.5)x(0.5+2.6) = 9.7 yd^2

5)

2.8 m

1.1 m

V = 3.14x1.1x1.1x2.8 = 10.6 m^3
A = (2x3.14x1.1)x(1.1+2.8) = 26.9 m^2

6)

4.3 in

12.4 in
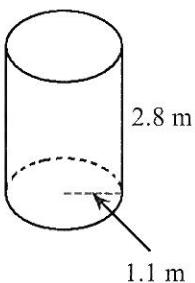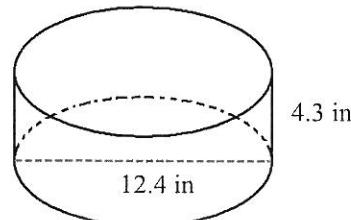
V = 3.14x6.2x6.2x4.3 = 519.0 in^3
A = (2x3.14x6.2)x(6.2+4.3) = 408.8 in^2

Unit Conversions Answer Key

1 a. 10 974 m = 10.97 km	1 b. 0.5 km = 500 m
2 a. 859 ml = 0.86L	2 b. 4 mm = 0.4 cm
3 a. 692 cm = 6.92m	3 b. 1.2 kg = 1200 g
4 a. 55 cm = 0.55 m	4 b. 2.6 cm = 26 mm
5 a. 9 cm = 0.09 m	5 b. 1 714 ml = 1.71L
6 a. 1 418 m = 1.42km	6 b. 679 mm = 67.9cm
7 a. 17 045 ml = 17.05 L	7 b. 1 238 m = 1.24 km
8 a. 226 mm = 22.6 cm	8 b. 7.5 kg = 7500 g
9 a. 3.1 cm = 31 mm	9 b. 0.9 m = 90 cm
10 a. 857 cm = 8.57 m	10 b. 22 mm = 2.2 cm
11 a. 1 964 ml = 1.96 L	11 b. 27.1 cm = 271 mm
12 a. 14 846 m = 14.85 km	12 b. 1 447 ml = 1.45 L

Scientific Notation (A) Answers

Convert each ordinary number to scientific notation.

3,900	=	3.9×10^3	0.000000038	=	3.8×10^{-8}
0.0094	=	9.4×10^{-3}	0.0000032	=	3.2×10^{-6}
0.00945	=	9.45×10^{-3}	61,490,000	=	6.149×10^7
9,400	=	9.4×10^3	181,000,000	=	1.81×10^8
1,060,000	=	1.06×10^6	5,800,000	=	5.8×10^6
5,729	=	5.729×10^3	7,907,000	=	7.907×10^6
74,920	=	7.492×10^4	63,000	=	6.3×10^4
0.0008	=	8×10^{-4}	0.0000028	=	2.8×10^{-6}
0.00064	=	6.4×10^{-4}	317,300,000	=	3.173×10^8
0.000000026	=	2.6×10^{-8}	0.000054	=	5.4×10^{-5}

Rearranging Important Formulas for Grade 9 Math & Science

Rearrange to get each of following variables by itself in each of the formulas below:

1. m then v

$$D = v/m \qquad D = \frac{v}{m}$$

$$\boxed{v = D \cdot m}$$

$$\boxed{m = \frac{v}{D}}$$

2. v then I

$$R = v/I \qquad R = \frac{v}{I}$$

$$\boxed{v = R \cdot I}$$

$$\boxed{I = \frac{v}{R}}$$

3. d then t

$$S = d/t \qquad S = \frac{d}{t}$$

$$\boxed{d = S \cdot t}$$

$$\boxed{t = \frac{d}{S}}$$

4. m, x and b

$$y = mx + b$$

$$-mx = b - y$$

$$\boxed{m = -\frac{(b-y)}{x}}$$

$$\boxed{x = -\frac{(b-y)}{m}}$$

$$\boxed{b = y - mx}$$