

Skill 1: Order of Operations

Skill 2: Multiplying & Dividing Fractions

Skill 3: Adding and Subtracting Fractions

Skill 4: Ratios, Rates & Proportions

Skill 5: U.S. System

Skill 6: Metric System

Skill 7: Metric System \leftrightarrow U.S. System; Temperature

Skill 8: Area and Perimeter

Skill 9: Volume

Skill 10: Expressions and Exponents

Skill 11: Simplifying Expressions

Skill 1: Order of Operations

1) $16 \div 4^2 + (-6 + 9)^2$

2)
$$\frac{-10 + 3^2 + 9}{3 - 10 - 11}$$

3)
$$\frac{5^2 - 3^2}{4(-2)}$$

4) $5 \div \left(-\frac{10}{3}\right) \left(-\frac{4}{9}\right)$

5) $16 \div 8 \cdot 2$

6)
$$\frac{2\sqrt{4^2 + (-3)^2}}{-6^2 + 3(6)}$$

Skill 2: Multiplying & Dividing Fractions

1) $\frac{20}{21} \cdot \frac{14}{15}$

2) $\frac{27}{36} \cdot \frac{12}{13} \cdot \frac{15}{30}$

3) $\frac{18}{7} \div \frac{3}{14}$

4) $\frac{22}{4} \div \frac{1}{12}$

5) $15 \cdot \frac{6}{45}$

6) $7\frac{3}{11} \div 3\frac{9}{11}$

Skill 3: Adding and Subtracting Fractions

1) $\frac{1}{4} + \frac{2}{3}$

2) $\frac{6}{8} - \frac{2}{12}$

3) $\frac{14}{15} + \frac{1}{15}$

4) $\frac{2}{25} - \frac{2}{55}$

Skill 4: Ratios, Rates & Proportions

- 1) Write the following ratio as a fraction in lowest terms: 8 days to 4 weeks.

- 2) A fifteen ounce can of garbanzo beans sells for \$1.49. A twenty-four ounce can of garbanzo beans sells for \$1.99. What is the cost per ounce to the **nearest cent per ounce** for **each** can? **Which can is the better buy?**

- 3) Solve: $\frac{x}{5} = \frac{2.6}{1.3}$

- 4) Solve for x: $\frac{6.6}{7.2} = \frac{3.3}{x}$

- 5) A bag of mulch covers 12 square feet of lawn. Find how many bags of mulch should be purchased to cover a rectangular garden 12 feet by 9 feet.

Skill 5: U.S. Customary System

- 1) 22 tons = _____ pounds
- 2) Ninety-six ounces = _____ pints
- 3) 8 cups = _____ quarts
- 4) 60 miles/hour = _____ feet/second

Skill 6: Metric System

- 1) Change 6.05 meters to cm
- 2) The width of a mantel above a fireplace would be approximately:
a) 2 km b) 2 m c) 200 m d) 2000 cm e) 200 mm
- 3) How many grams of sugar are necessary to manufacture 125 sugar cubes if each sugar cube is to contain 150 milligrams of sugar?
- 4) Change 35.65 cg to kg
- 5) The average bathroom-sized trash can would be approximately:
a) 500 mL b) 5 cL c) 50 L d) 5 L e) 500 kL
- 6) Change 2.65 Liters to mL

Skill 7: Metric System ↔ U.S. System; Temperature

- 1) Given that $1 \text{ kg} \approx 2.2 \text{ lbs}$ (pounds),
 $256 \text{ kg} = \underline{\hspace{2cm}}$ lbs (pounds)

- 2) Given that $1 \text{ meter} \approx 3.28 \text{ feet}$,
 $5.5 \text{ feet} = \underline{\hspace{2cm}}$ meters
 Round answer to nearest tenth of a meter.

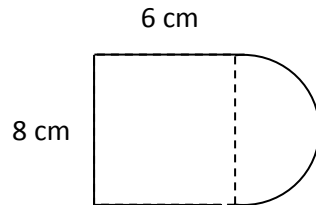
- 3) Given that $1 \text{ inch} \approx 2.54 \text{ cm}$,
 $2 \text{ mi} = \underline{\hspace{2cm}}$ cm

- 4) The formula for converting Celsius to Fahrenheit temperatures is $= \frac{9C}{5} + 32$. If the temperature outside is 15°C , what is the Fahrenheit temperature?

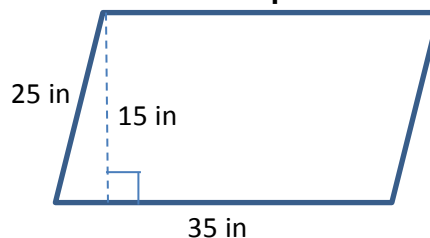
- 5) The formula for converting Fahrenheit to Celsius temperatures is $= \frac{5(F-32)}{9}$. If the temperature outside is 55°F , what is the Celsius temperature?
 Round answer to nearest degree.

Skill 8: Area and Perimeter

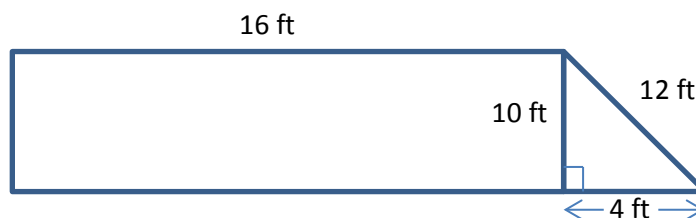
- 1) Explain in your own words the differences between perimeter, area, and volume. How are the units for each different?
- 2) A square backyard has a perimeter of 82 feet. What is the length of each side?
- 3) The width of a rectangle is 16 in. Find the length of the rectangle if the area is 192 square inches.
- 4) Find the area and perimeter of the shape below. Use $\frac{22}{7}$ for π . Round your answer to the nearest tenth.



- 5) Find the perimeter and area of the parallelogram.



- 6) Find the perimeter and area of the shape.



Skill 9: Volume

- 1) The volume of a pyramid is given by $V = \frac{1}{3} Bh$, where B is the area of the base of the pyramid, and h is the height of the pyramid. Find the volume of the pyramid if the length of the rectangular base is 5 m, the width of the rectangular base is 11 m, and the height of the pyramid is 20 m.

- 2) The volume of a rectangular solid is given by $V = l \cdot w \cdot h$. If the volume of the rectangular solid is 3,240 cubic feet, the width is 15 feet, and the height is 6 feet, find the length.

- 3) A kitchen pipe has a diameter of 4 inches and is 48 inches long. The volume of a cylinder is given by $V = \pi r^2 h$. Find the volume of the kitchen pipe. Leave answer in terms of π

Skill 10: Expressions and Exponents

Evaluate the expressions:

1) $(-4)^2$

2) -4^2

3) $(\frac{1}{3})^4$

4) $(-0.5)^3$

5) 332^0

6) 332^1

7) Simplify the expression: $\frac{3\sqrt{6(2)^3 + (-2)^4}}{-3^2 - 12(0.5)^2}$

8) Evaluate $4mp^2$ when $m = -2$ and $p = 3$

9) Is 3 a solution to the equation $2a + 7 = 5a - 1$?

Skill 11: Simplifying Expressions

- 1) What is the coefficient of the following expression: $-\frac{x}{6}$

- 2) For the expression: $4b^2 + 3b^4 - 5b^3 + 14 - 6b^2 - b^4 - 7$
 - a. How many terms are there?
 - b. What are the coefficients of each term?
 - c. Simplify by combining like terms and writing the expression in descending order.

- 3) Simplify: $-3y^2 + 4y - 24 - 12y + 8 + 7y^2$

- 4) Simplify: $6(3x - 6) - 2(x + 1) - 17x$

- 5) Simplify: $\frac{1}{3}(7n - 1) + \frac{1}{6}(4n + 7)$

- 1.1) 10
1.2) $-\frac{4}{9}$
1.3) -2
1.4) $\frac{2}{3}$
1.5) 4
1.6) $-\frac{5}{9}$
2.1) $\frac{8}{9}$
2.2) $\frac{9}{26}$
2.3) 12
2.4) 66
2.5) 2
2.6) $\frac{40}{2}$
- 3.1) $\frac{11}{12}$
3.2) $\frac{7}{12}$
3.3) 1
3.4) $\frac{12}{275}$
4.1) $\frac{2}{7}$
4.2) 150¢ \$1.10/oz
240¢ \$1.08/oz
240¢ Better Buy
4.3) $x = 10$
4.4) $x = 3.6$
4.5) 9 bags
- 5.1) 44000 lbs
5.2) 6 yts
5.3) 2 yts
5.4) 88 ft/sec
6.1) 605m
6.2) e
6.3) 18.75 gm
6.4) .0003565 kg
6.5) d
6.6) 2650 ml
- 7.1) 563.2 lbs
7.2) 1.7m
7.3) 126720 in
321868.8 cm
7.4) 59° F
7.5) $12.\bar{7}^\circ \approx 13^\circ\text{C}$
8.1) vocab
8.2) 20.5 ft
8.3) $L = 12$ in
8.4) $P = 32\frac{1}{7}$ cm
 $A = 73\frac{1}{7}$ cm²
8.5) $P = 120$ in $A = 525$ in²
8.6) $P = 58$ ft $A = 180$ in²

- 9.1) $\frac{1100}{3} \text{ m}^3 = 366\frac{2}{3} \text{ m}^3$
9.2) $L = 36$ ft
9.3) $V = 192\pi \text{ in}^3$
- 10.1) 16
10.2) -16
10.3) $\frac{1}{81}$
10.4) -.125
10.5) 1
10.6) 332
10.7) -2
10.8) -72
10.9) 13=11 NO
- 11.1) $-\frac{1}{6}$
11.2) a) 7
b) 4, 3, -5, 14, -6, -1, -7
c) $2b^4 - 5b^3 - 2b^2 + 7$
11.3) $4y^2 - 8y - 16$
11.4) $-x - 38$
11.5) $3n + \frac{5}{7}$