# Math 8

*Wall Township Math Department*
*Optional Summer Assignment*

- ★ This summer assignment is intended to prepare you for the math course above.
- ★ You will find examples and video links to help you complete the practice.
- ★ It is important to complete this practice *without the use of a calculator*.

***Skill 1: Fraction Operations without a Calculator***


Helpful Video Link:

➔ Fraction Review | How to Add, Subtract, Multiply, and Divide Fractions

Practice: Write all answers in simplest form.

| | | | |
|---|---|---|---|
| 1) | $\frac{2}{7} + \frac{6}{10}$ | 2) | $2\frac{1}{2} + \frac{4}{5}$ |
| 3) | $10\frac{2}{3} + 7\frac{1}{7}$ | 4) | $\frac{2}{7} + \frac{6}{10}$ |
| 5) | $\frac{7}{8} \times \frac{1}{2}$ | 6) | $5\frac{3}{4} \times 1\frac{3}{8}$ |
| 7) | $4 \times 6\frac{1}{4}$ | 8) | $3\frac{3}{4} \div 1\frac{1}{2}$ |
| 9) | $\frac{1}{4} \div \frac{1}{12}$ | 10) | $\frac{1}{4} \div 10$ |

***Skill 2: Integers***


Helpful Video Link:

- ➔ Adding Integers Using a Number Line | Math with Mr. J
- ➔ Multiplying and Dividing Integer Rules

Practice: Simplify the following without a calculator.

| | | | |
|---|---|---|---|
| 1) | -4 + 9 | 2) | 3(-5) |
| 3) | -8 – 3 | 4) | -12 ÷ -6 |
| 5) | -8 – (-3) | 6) | -6(-8) |

***Skill 3: Order of Operations***


Helpful Video Link:

➔ Order of Operations - Made Easy!

Practice: Use the Order of Operations to simplify each numerical expression without a calculator.

| | | | |
|---|---|---|---|
| 1) | $(4 + 9 + 16 \div 4) - 8 - 3 \times 5$ | 2) | $5 + [10 - (4 + 3)] + 8$ |
| 3) | $(12 \div 6) + [(12 + 2) \times 3^2]$ | 4) | $10^2 + [(12 \times \frac{1}{2}) \div 2] \times 6$ |
| 5) | $16 \div [(3.2 \times 3) + 1.8]$ | 6) | $36.8 \div [11.5 - (2.5 \times 3)]$ |

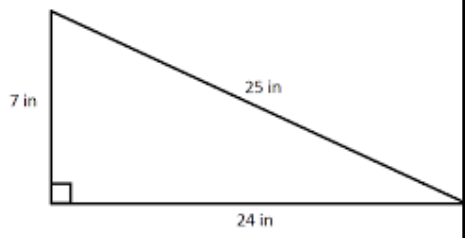
***Skill 4: Finding the perimeter and area of polygons***


Helpful Video Link:

- ➔ Area and Perimeter of Irregular Shapes
- ➔ How to Find Area and Circumference of a Circle
- ➔ How to Find the Area and Perimeter of a Trapezoid
- ➔ How to Find the Area and Perimeter of a Parallelogram

Practice: Find the perimeter and area of the following shapes without the use of a calculator.

1)

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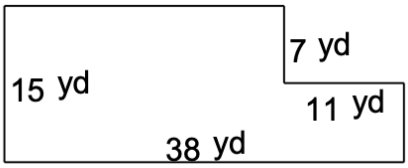
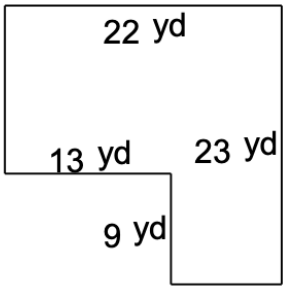



3)

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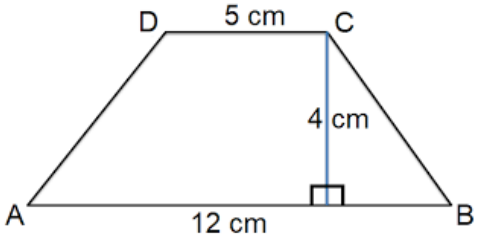
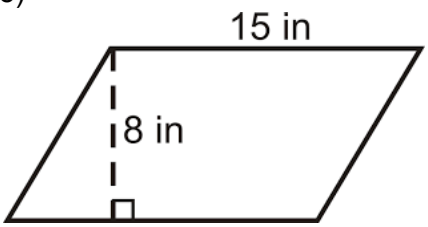
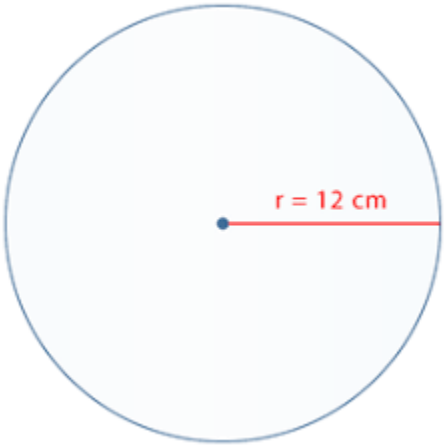



5)




6)



***Skill 5. Percents & Proportions***


Helpful Video Link:

- ➔ Finding a Percent of a Number | Calculating Percentages
- ➔ Solving Unit Rate Word Problems | Math with Mr. J

Practice: Solve the following without a calculator.

| | | | |
|---|---|---|---|
| 1) | What is 40% of 12? | 2) | What is 120% of 80? |
| 3) | 50 is 20% of what number? | 4) | What percent of 90 is 45? |
| 5) | Justine earned $112 for 8 hours of work. At this rate, how much will she earn for 40 hours of work? | 6) | Kevin is following a cookie recipe that makes 36 cookies, but wants to reduce it to 24 cookies. If the recipe specifies sing 2 cups of sugar, how much sugar will e need for the 24 cookies? |

***Skill 6. Evaluating Expressions***


Helpful Video Link:

➔ Evaluate Expressions with Variables | Find the Value of an Expression

Practice: Evaluate the expertsion for the given values without the use of a calculator.

$x = 5 \quad y = 2 \quad a = 8 \quad b = 6 \quad c = -4$

| | | | |
|---|---|---|---|
| 1) | $3y + a$ | 2) | $b^2 + x$ |
| 3) | $2.5a + 4.2$ | 4) | $a + c$ |
| 5) | $a - c$ | 6) | $3x^2 + 8$ |

***Skill 7. Solving Equations***


Helpful Video Link:

➔ Solving Equations with Integers

Practice: Solve the following without a calculator.

| | | | |
|---|---|---|---|
| 1) | $-3x = 18$ | 2) | $-5 + m = -17$ |
| 3) | $y - 8 = 10$ | 4) | $\frac{x}{4} = -5$ |
| 5) | $m - 3 = -21$ | 6) | $w + 3 = -12$ |

***Skill 8: Tables of Values***


Helpful Video Link:

➔ Completing a Table of Values Given a Linear Equation (Part 2)

Practice: Complete the Table of values for each equation provided.

$y = 2x + 1$

| **x** | 0 | 2 | 4 | 6 | 8 | 10 |
|---|---|---|---|---|---|---|
| **y** | | | | | | |

$y = \frac{1}{2}x$

| **x** | 0 | 2 | 4 | 6 | 8 | 10 |
|---|---|---|---|---|---|---|
| **y** | | | | | | |

$y = x + 5$

| **x** | 0 | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|---|
| **y** | | | | | | |

## Standardized Test Practice

**1)** Which expressions are equivalent to $3\frac{1}{4} - \left(-\frac{5}{8}\right)$?

Select **all** that apply.

**A.** $3\frac{1}{4} - \left(\frac{5}{8}\right)$

**B.** $3\frac{1}{4} + \left(\frac{5}{8}\right)$

**C.** $3\frac{1}{4} + \left(-\frac{5}{8}\right)$

**D.** $3\frac{1}{4} + \left(+\frac{5}{8}\right)$

**E.** $-3\frac{1}{4} + \left(-\frac{5}{8}\right)$

**F.** $-3\frac{1}{4} + \left(+\frac{5}{8}\right)$

**2)** At the start of the month, the value of an investment was \$48.45. By the end of the month, the value of the investment changed by a loss of \$13.80.

What was the value, in dollars, of the investment at the end of the month?

**3)** Which expression is equivalent to $\frac{1}{4}(8 - 6x + 12)$?

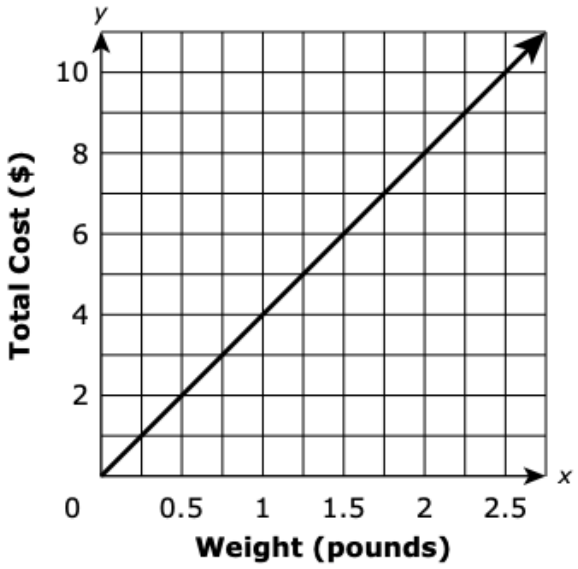
**A.** $\frac{7}{2}x$

**B.** $-\frac{13}{2}x$

**C.** $-6x + 14$

**D.** $-\frac{3}{2}x + 5$

**4)** This graph shows the relationship between the pounds of cheese bought at a deli and the total cost, in dollars, for the cheese.




Select **each** statement about the graph that is true.

Select **all** that apply.

**A.** The point (0, 0) shows the cost is $0.00 for 0 pounds of cheese.

**B.** The point (0.25, 1) shows the cost is $0.25 for 1 pound of cheese.

**C.** The point (0.5, 2) shows that 0.5 pound of cheese costs $2.00.

**D.** The point (1, 4) shows the cost is $4.00 for 1 pound of cheese.

**E.** The point (2, 8) shows that 8 pounds of cheese cost $2.00.

**5)** Jessica rented 1 video game and 3 movies for a total of $11.50.

- The video game cost $4.75 to rent.
- The movies cost the same amount each to rent.

What amount, in dollars, did Jessica pay to rent each movie?

Enter your answer in the box.

**6)** Which expressions have products that are positive?

Select **all** that apply.

**A.** $(-5)(0.2)(-9)$

**B.** $\left(\frac{2}{3}\right)\left(\frac{3}{2}\right)\left(-\frac{1}{2}\right)$

**C.** $(6)(-3)(8)(-7)$

**D.** $\left(-4\frac{1}{3}\right)\left(-\frac{1}{4}\right)\left(-5\frac{1}{2}\right)\left(-\frac{7}{9}\right)$

**E.** $\left(\frac{5}{6}\right)(-10)\left(3\frac{4}{5}\right)(2)$

**F.** $(-1.2)(-3.5)(2.7)(-0.8)$

**7)** In which of these situations would the answer to the question be 0?

**A.** Teddy jumped into a pool from a diving board 8 feet above the water. He sank 8 feet and then swam straight up to the surface of the water. How many feet did Teddy swim?

**B.** Jerry left his house and walked 1.5 miles directly west. Then he walked 1.5 miles directly east. At this point, how many miles was Jerry from his house?

**C.** A trail begins at an elevation of $-50$ feet. The trail ends at an elevation of 50 feet. By how many feet does the elevation of the trail change from beginning to end?

**D.** The low temperature one day was $-3°$ Celsius. The high temperature that day was $3°$ Celsius. What is the difference between the low temperature and the high temperature that day?