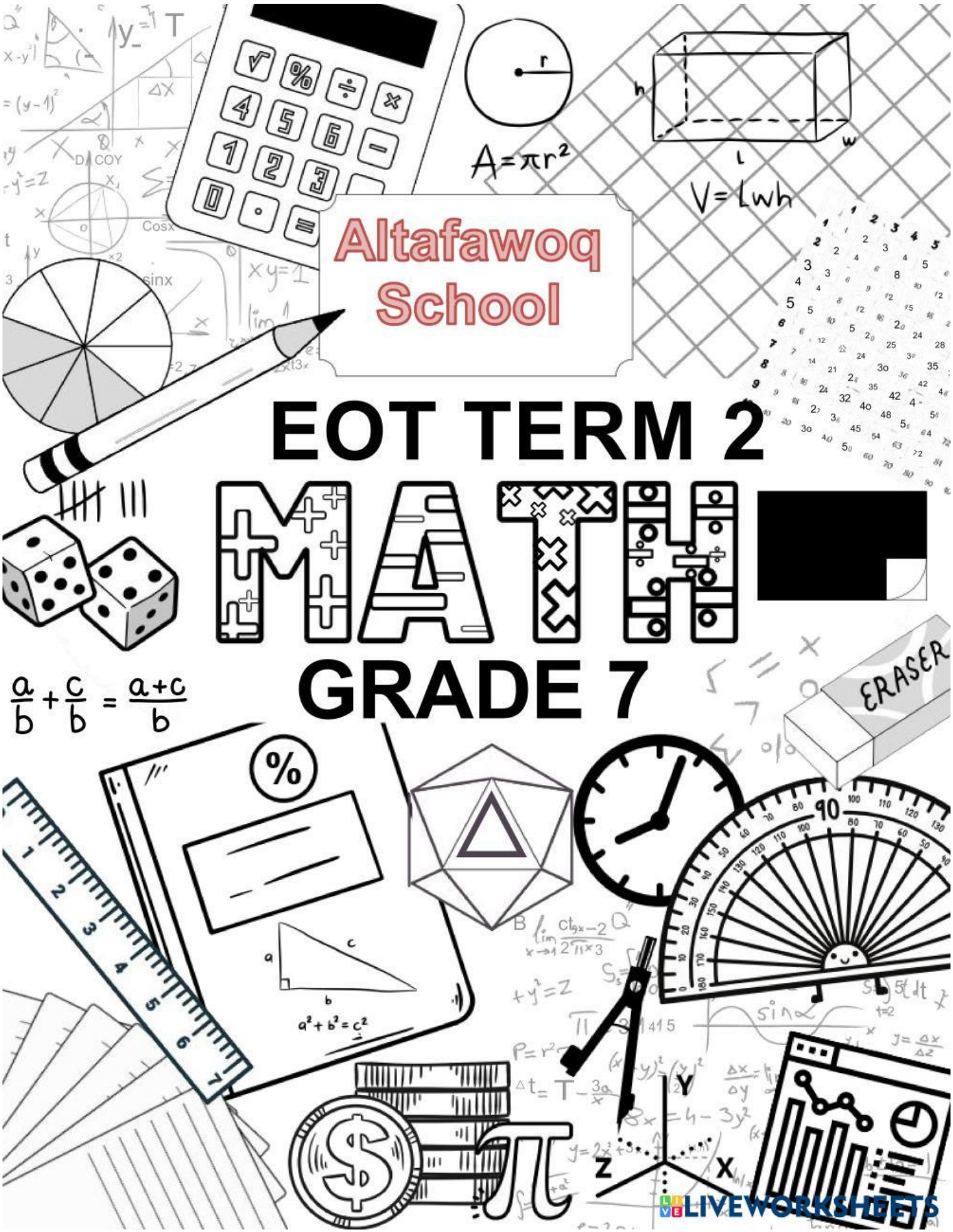
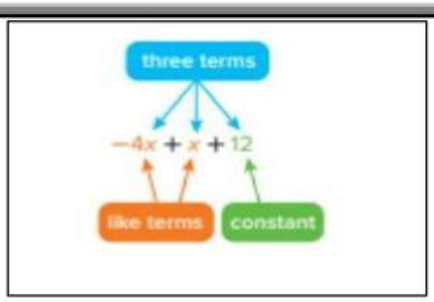





**QUESTION 1**

Sort the terms by writing like terms in the appropriate bins.

$5 \quad 8x \quad -9x^2 \quad 6x \quad -12 \quad 30x^2 \quad -1.5x \quad \frac{1}{2}$

| $4x^2$ | $-2x$ | 3 |
|---|---|---|
| | | |

**QUESTION 2**

The cost of a jacket $j$ after a 5% markup can be represented by the expression $j + 0.05j$.

**Simplify the expression.**

$j + 0.05j =$

**QUESTION 3**

The cost of a new pair of shoes after a 3% markup can be represented by the expression $c + 0.03c$. Simplify the expression.

**QUESTION 4**

**Simplify $-5x + y + 6 - 5y - 3$.**

Simplify $-5 - 3w + 9 - 6z + 8w - 4z$.

Ⓐ $4 - 9w + 4z$

Ⓑ $4 + 5w - 10z$

Ⓒ $4 + 5w + 10z$

Ⓓ $-4 - 5w - 10z$

**QUESTION 5**

**QUESTION 6**

**1.** $(8x + 9) + (-6x - 2)$ **2.** $(5x + 4) + (-8x - 2)$ **3.** $(-7x + 1) + (4x - 5)$

**QUESTION 7**

**Find the additive inverse of $5x - 7$.**

To find the additive inverse, multiply the expression by $-1$.

**QUESTION 8**

Find the additive inverse of $-7x + 3$.

**QUESTION 9**

**Find the GCF of $12y$ and $30y$.**

**QUESTION 10**

**Find the GCF of each pair of monomials.** (Example 1)

**1.** $4y, 12y$ **2.** $48x, 32x$ **3.** $16mn, 24m$

**QUESTION 11**

**Factor each expression. If the expression cannot be factored, write *cannot be factored.*** (Examples 3–5)

**7.** $5x + 35$ **8.** $8x - 14$ **9.** $3x + 11y$

**QUESTION 12**

**Simplify each expression. For Exercises 1–4 and 9–12, write your answer in factored form.** (Examples 1–3)

**1.** $3(x + 4) + 5x$ **2.** $-4(x + 1) + 6x$ **3.** $-5(2x - 6) + 25x$

**4.** $2(-8x - 3) + 18x$ **5.** $\frac{1}{6}x + \frac{3}{4}\left(\frac{1}{2}x - 4\right)$ **6.** $\frac{2}{3}\left(6x - \frac{1}{6}\right) + 3x$

**QUESTION 13**

**Solve each equation. Check your solution.** (Examples 1–7)

**1.** $6 + y = -8$ **2.** $-12 = 4 + c$ **3.** $p - 11 = -5$

**4.** $12 = z - 8$ **5.** $-7x = 56$ **6.** $-20 = -5b$

7. $\frac{d}{-9} = -6$ 8. $15 = \frac{z}{-8}$ 9. $2\frac{4}{5}x = -1\frac{1}{4}$

**QUESTION 14**

**Solve each equation. Check your solution.** (Examples 1–4)

1. $5x + 2 = 17$ 2. $19 = 4x + 3$ 3. $-18 = 6 + 6x$

**QUESTION 15**

**A)**

**Write and solve an equation to determine the stingray's initial depth.**

**Part A** Write an equation.

The initial depth plus $5\frac{1}{2}$ feet equals $-14\frac{5}{6}$ feet.

**B).**

The table shows the balance of Rob's checking account at the end of the day. This is \$95.50 less than the amount he had at the beginning of the day. Write and solve an equation to determine the balance at the beginning of the day. (Example 8)

| Time | Balance (\$) |
|---|---|
| Start of Day | ? |
| End of Day | 4.50 |

C)

At the end of the week, Madison had −$55.98 in her checking account. This is $202.64 less than the amount she had at the beginning of the week.

Part A

Which equation can be used to determine the amount of money $m$ Madison had at the beginning of the week?

- A $-55.98 = m - 202.64$
- B $-55.98 = m + 202.64$
- C $202.64 = m - 55.98$
- D $-202.64 = m - 55.98$

Part B

How much money did Madison have at the beginning of the week?

D)

**2. An adult-sized basketball is 29.5 inches around. That is 2 inches bigger around than a youth-sized basketball, $y$.**

E)

Amelia started with $54, and spent $6 each day at camp. She has $18 left. Write and solve an equation to find how many days $d$ Amelia was at camp.

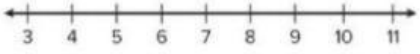
**Part A** Which equation can be used to determine how many days $d$ she was at camp?

(A) $6 + 54d = 18$
(B) $54 + 6d = 18$
(C) $6 - 54d = 18$
(D) $54 - 6d = 18$

**QUESTION 16**

**Solve $x + 3 > 10$. Check your solution. Then graph the solution set on a number line.**

**Part B** Graph the solution set on a number line.

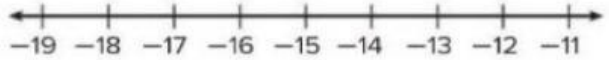



**QUESTION 17**

Solve $6 + h \leq -9$ and graph the solution set.

**Part A** Solve $6 + h \leq -9$.

Graph the solution set.

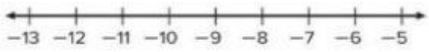



**QUESTION 18**

**A)**

**Solve $0.4 + y \leq -9.6$. Check your solution. Then graph the solution set on a number line.**

**Part B** Graph the solution set on a number line.

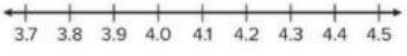



B)

Solve $x + 1.3 < 5.4$ and graph the solution set.

**Part A** Solve $x + 1.3 < 5.4$.

**Part B** Graph the solution set.




**QUESTION 19**

Write an addition inequality and a subtraction inequality that each have the solution set graphed below.


**QUESTION 20**

**Write an equation that can be used to determine the value of the variable in each situation.**

**1.** Today, Kevin jogged 12 minutes more than yesterday, *y*. He jogged 20 minutes today.

**2.** Mike has eighty-seven fewer dollars than Ashley, *x*. Mike has nineteen dollars.

**3.** Kellen practiced baseball for 25 more minutes today than yesterday, *y*. Today he practiced for 75 minutes.


**QUESTION 21**

Gabe went to the amusement park with $40 to spend. His ticket cost $26.50. Determine how much Gabe can spend on souvenirs and snacks. Then interpret the solution.

**QUESTION 22**

Peter can spend no more than $100 on new clothes for school. He spends $35 on a new pair of shoes. Shirts cost $15.

Write and solve an inequality to determine how many shirts Peter can purchase. Then interpret the solution.

**Part A** Which inequality can be used to determine the number of shirts Peter can buy?

Ⓐ $35 + 15x \leq 100$

Ⓑ $35x + 15 \leq 100$

Ⓒ $35 + 15x \geq 100$

Ⓓ $35x + 15 \geq 100$

**QUESTION 23**

Meredith is given a $50 monthly allowance to buy lunch at school. Any remaining money can be spent on entertainment. Meredith would like to have at least $12 left at the end of the month to go to the movies with her friends. It costs Meredith $2.50 per lunch that she buys at school.

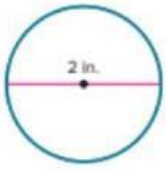
**Write and solve an inequality to determine the number of lunches Meredith can buy and have at least $12 left. Then interpret the solution.**

**Part A** Write an inequality to determine the number of lunches Meredith can buy.

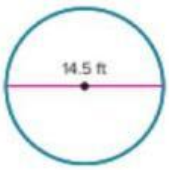
**Part B** Solve the inequality.

**QUESTION 24**

1. Find the circumference of the watch face. Use 3.14 for $\pi$. Round to the nearest hundredth if necessary. (Example 1)



**2.** A circular fence is being used to surround a dog house. How much fencing is needed to build the fence? Use 3.14 for π. Round to the nearest hundredth if necessary. (Example 1)

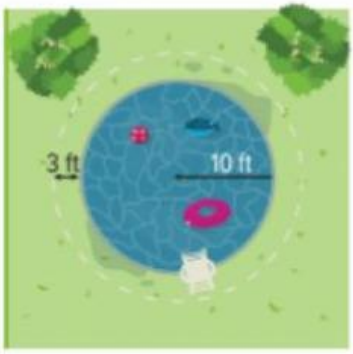



**3.** Find the circumference of a circle with a radius of $31\frac{1}{2}$ yards. Use 3.14 for π. Write your answer as a decimal rounded to the nearest hundredth. (Example 2)

**4.** Find the circumference of a circle with a radius of 4.4 inches. Use 3.14 for π. Round to the nearest hundredth if necessary. (Example 2)

**QUESTION 25**

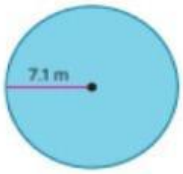
The Blackwells have a circular pool with a radius of 10 feet. They want to install a 3-foot wide sidewalk around the pool.




What will be the area of the sidewalk? Use 3.14 for π. Round to the nearest hundredth if necessary.

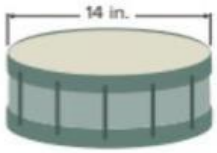
**QUESTION 26**

**1.** Find the area of the circle. Use 3.14 for π. Round to the nearest hundredth if necessary. (Example 1)




**2.** Find the area of the circle. Use 3.14 for π. Round to the nearest hundredth if necessary. (Example 1)


**3.** What is the area of the drumhead on the drum? Use 3.14 for π. Round to the nearest hundredth if necessary. (Example 2)

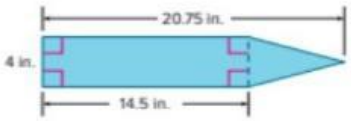



**4.** What is the area of one side of the penny? Use 3.14 for π. Round to the nearest hundredth if necessary. (Example 2)


**QUESTION 27**

Ayanna is painting a sign made from a piece of reclaimed wood with the dimensions shown.

**What is the area of the sign?**




**Step 1** Decompose the figure into smaller figures.

The figure is a pentagon that is composed of a rectangle and a triangle.

**Step 2** Find the area of each figure.

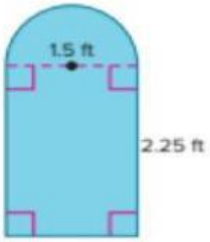
Complete the steps.

| Find the area of the rectangle. | Find the area of the triangle. |
|---|---|
| $A = \ell \cdot w$ | $A = \frac{1}{2}bh$ |
| $= 14.5 \cdot 4$ | $= \frac{1}{2} \cdot 4 \cdot 6.25$ |
| $=$ | $=$ |

**QUESTION 28**

Find the area of the figure. Use 3.14 for π. Round to the nearest hundredth if necessary.

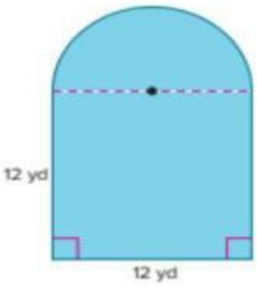
Show your work here



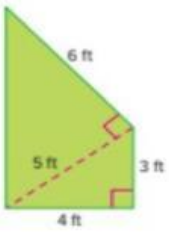

**QUESTION 29**

**Find the area of each figure. If necessary, use 3.14 for π and round to the nearest hundredth.** (Example 1)

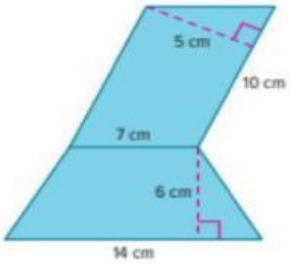
**1.**




**2.**




**3.**




**QUESTION 30**

The city of Wellington is commissioning a statue to honor their former mayor. The circular base of the statue will be 26 feet in diameter.

**What is the area of the space needed to fit the base of the statue? Use 3.14 for π. Round to the nearest hundredth if necessary.**