



Halloween Math Worksheets: High School

4 printable Halloween worksheets for high school, each with an answer key.

#	Worksheet	Level	Skill
1	Haunted House Systems	High School	Systems of linear equations
2	Pumpkin Launch	High School	Quadratic functions and the quadratic formula
3	Candy Bag Probability	High School	Probability and expected value
4	Zombie Outbreak	High School	Exponential growth and decay with logarithms

Print

Print on US Letter or A4 with "Fit to page" turned on. Black and white works fine.

Answer keys

Every worksheet has a matching answer key, starting on page 6.

Timing

Each sheet takes about 15 to 25 minutes. The riddle and picture sheets work well for early finishers.

Sharing

Free to print and share with your class, homeschool group or family. Please link to the page instead of reselling the files.

Haunted House Systems

High School

Write a system of two equations for each problem, then solve it.

Name _____

Date _____

1. A haunted house sold 180 tickets for \$1,864. Adult tickets cost \$12 and child tickets cost \$8. How many of each were sold?

Answer: _____

2. Three chocolate bars and two lollipops cost \$24. One chocolate bar and four lollipops cost \$18. Find the price of each (whole dollars).

Answer: _____

3. A witch mixes a 10% potion with a 40% potion to make 6 liters of a 20% potion. How many liters of each did she use?

Answer: _____

4. A ghost ship sails 24 miles downstream in 3 hours and 6 miles back upstream in 3 hours. Find the speed of the ship in still water and the speed of the current.

Answer: _____

5. Solve the system: $2x + 3y = -1$ and $x - y = -8$.

Answer: _____

6. Solve the system: $5x - 2y = 22$ and $3x + 4y = 8$.

Answer: _____

Pumpkin Launch

High School

A catapult launches pumpkins. Height h is in feet and time t is in seconds.
Round to 2 decimal places where needed.

Name _____

Date _____

	Height model	Time to top	Maximum height	Time to land
Launch A	$h(t) = -16t^2 + 64t + 6$	_____	_____	_____
Launch B	$h(t) = -16t^2 + 80t + 4$	_____	_____	_____
Launch C	$h(t) = -16t^2 + 96t + 10$	_____	_____	_____

Hint: the top of the arc is at $t = -b/(2a)$. The pumpkin lands when $h(t) = 0$.

Work space

4. Which launch stays in the air longest? How much longer than Launch A?

Answer: _____

5. For Launch A, when is the pumpkin exactly 54 feet high? Give both times.

Answer: _____

Candy Bag Probability

High School

Give each answer as a fraction in lowest terms unless the question asks for a count.

Name _____

Date _____

A trick-or-treat bag holds 6 chocolate bars, 4 lollipops, 5 gummy worms, 3 caramels. That is 18 candies in all. You pull candies without looking.

1. What is the probability of pulling a chocolate bar?

Answer: _____

2. What is the probability of not pulling a gummy worm?

Answer: _____

3. You pull one candy, eat it, then pull another. What is the probability both are chocolate bars?

Answer: _____

4. You pull a candy, put it back, and pull again. What is the probability of a lollipop and then a caramel?

Answer: _____

5. If you pull a candy and put it back 90 times, about how many lollipops would you expect?

Answer: _____

6. A spinner pays 3 candies on $\frac{1}{4}$ of spins, 1 candy on $\frac{1}{2}$ of spins and 0 candies otherwise. What is the expected number of candies per spin?

Answer: _____

Zombie Outbreak

High School

A zombie outbreak starts with 5 zombies, and the number doubles every 3 hours: $N(t) = 5 \cdot 2^{(t/3)}$, where t is in hours.

Name _____

Date _____

Part A: Complete the table

Hours	$t = 0$	$t = 3$	$t = 6$	$t = 12$	$t = 18$
Zombies	_____	_____	_____	_____	_____

Part B: Solve

2. After how many hours are there exactly 1,280 zombies?

Answer: _____

3. After how many hours are there 1,000 zombies? Round to one decimal place.

Answer: _____

4. A second town grows linearly: $L(t) = 5 + 40t$. Which town has more zombies at $t = 12$? At $t = 24$?

Answer: _____

5. A cure potion starts at 80% strength and loses half its strength every 5 days. What is its strength after 15 days?

Answer: _____

6. When does the potion first drop to 5% strength?

Answer: _____

Haunted House Systems

Answer key

High School

Write a system of two equations for each problem, then solve it.

Name _____

Date _____

1. A haunted house sold 180 tickets for \$1,864. Adult tickets cost \$12 and child tickets cost \$8. How many of each were sold?

Answer: 106 adult, 74 child

2. Three chocolate bars and two lollipops cost \$24. One chocolate bar and four lollipops cost \$18. Find the price of each (whole dollars).

Answer: bar \$6, lollipop \$3

3. A witch mixes a 10% potion with a 40% potion to make 6 liters of a 20% potion. How many liters of each did she use?

Answer: 4 L of 10%, 2 L of 40%

4. A ghost ship sails 24 miles downstream in 3 hours and 6 miles back upstream in 3 hours. Find the speed of the ship in still water and the speed of the current.

Answer: ship 5 mph, current 3 mph

5. Solve the system: $2x + 3y = -1$ and $x - y = -8$.

Answer: $x = -5, y = 3$

6. Solve the system: $5x - 2y = 22$ and $3x + 4y = 8$.

Answer: $x = 4, y = -1$

Pumpkin Launch

Answer key

High School

A catapult launches pumpkins. Height h is in feet and time t is in seconds.
Round to 2 decimal places where needed.

Name _____

Date _____

	Height model	Time to top	Maximum height	Time to land
Launch A	$h(t) = -16t^2 + 64t + 6$	<u>2 s</u>	<u>70 ft</u>	<u>4.09 s</u>
Launch B	$h(t) = -16t^2 + 80t + 4$	<u>2.5 s</u>	<u>104 ft</u>	<u>5.05 s</u>
Launch C	$h(t) = -16t^2 + 96t + 10$	<u>3 s</u>	<u>154 ft</u>	<u>6.10 s</u>

Hint: the top of the arc is at $t = -b/(2a)$. The pumpkin lands when $h(t) = 0$.

Work space

4. Which launch stays in the air longest? How much longer than Launch A?

Answer: Launch C, 2.01 s longer

5. For Launch A, when is the pumpkin exactly 54 feet high? Give both times.

Answer: $t = 1$ s and $t = 3$ s

Candy Bag Probability

Answer key

High School

Give each answer as a fraction in lowest terms unless the question asks for a count.

Name _____

Date _____

A trick-or-treat bag holds 6 chocolate bars, 4 lollipops, 5 gummy worms, 3 caramels. That is 18 candies in all. You pull candies without looking.

1. What is the probability of pulling a chocolate bar?

Answer: 1/3

2. What is the probability of not pulling a gummy worm?

Answer: 13/18

3. You pull one candy, eat it, then pull another. What is the probability both are chocolate bars?

Answer: 5/51

4. You pull a candy, put it back, and pull again. What is the probability of a lollipop and then a caramel?

Answer: 1/27

5. If you pull a candy and put it back 90 times, about how many lollipops would you expect?

Answer: 20

6. A spinner pays 3 candies on $1/4$ of spins, 1 candy on $1/2$ of spins and 0 candies otherwise. What is the expected number of candies per spin?

Answer: 5/4

Zombie Outbreak

Answer key

High School

A zombie outbreak starts with 5 zombies, and the number doubles every 3 hours: $N(t) = 5 \cdot 2^{(t/3)}$, where t is in hours.

Name _____

Date _____

Part A: Complete the table

Hours	$t = 0$	$t = 3$	$t = 6$	$t = 12$	$t = 18$
Zombies	<u>5</u>	<u>10</u>	<u>20</u>	<u>80</u>	<u>320</u>

Part B: Solve

2. After how many hours are there exactly 1,280 zombies?

Answer: 24 hours

3. After how many hours are there 1,000 zombies? Round to one decimal place.

Answer: 22.9 hours

4. A second town grows linearly: $L(t) = 5 + 40t$. Which town has more zombies at $t = 12$? At $t = 24$?

Answer: linear at 12 (485 vs 80), exponential at 24 (1280 vs 965)

5. A cure potion starts at 80% strength and loses half its strength every 5 days. What is its strength after 15 days?

Answer: 10%

6. When does the potion first drop to 5% strength?

Answer: 20 days