

RATIOS & UNIT RATES

Winter

Solve & Draw

PREVIEW

ACTIVATED
EDUCATION

RATIOS & UNIT RATES

Winter Theme

Solve & Draw

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RATIOS & UNIT RATES

Winter

Solve & Draw

DIRECTIONS

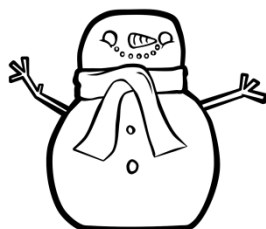
Solve and Draw no-prep printables for are an easy, no-prep way to make ratio and unit rate practice more engaging in the winter months! These pages are not holiday specific and can be used throughout winter. Inspired by a group of reluctant mathematicians with amazing creativity, these printables are designed to engage students in math practice with an artistic twist. This resource may be used as a fun quiz or review. Perfect for the sub tub or a math center.

How Solve & Draw Activities Work

Students solve the ratio problems and add to the Winter-themed drawing based on their answers. Drawing is no-prep because it can be done with the student's normal writing utensil (pen or pencil). You may choose to allow colored pencils, crayons, or markers but they are not required. This works well as a homework option for families who may not have those supplies to offer and is a great "print and go" resource for sub days, warm ups, and math centers!

Identifying the ratio of shapes, writing equivalent ratios, writing ratios from phrases, identifying unit rates, better buys, and understanding unit rates are all included as well as one mixed review page.

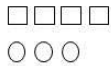
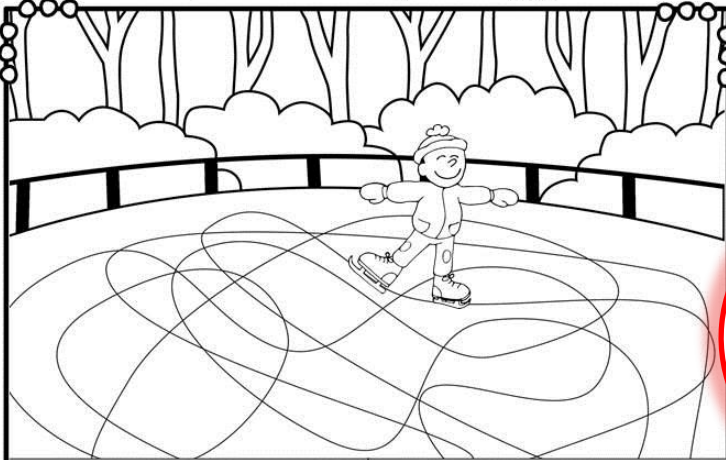
An optional challenge page is included that can be copied on the back of the worksheet – this gives students an extension opportunity by asking them to write a ratio problem that fits one of the incorrect drawing prompts or to write a new ratio problem and their own drawing prompts. This works well to extend thinking and for early finishers.



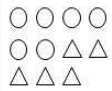
PREVIEW

Find the ratio of the shapes and add to the drawing.

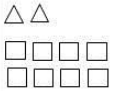
Name: _____



- ☐ If the ratio of squares to circles is 4:3, draw another boy ice skater.
- ☐ If the ratio of squares to circles is 4:7, draw the moon in the sky.



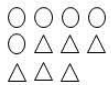
- ☐ If the ratio of circles to triangles is 6:5, draw an ice skating dog.
- ☐ If the ratio of circles to triangles is 5:6, draw leaves on the trees.



- ☐ If the ratio of triangles to squares is 8:2, draw an ice skating bear.
- ☐ If the ratio of triangles to squares is 2:8, draw snow on the bushes and trees.



- ☐ If the ratio of squares to circles is 3:2, draw an ice skating snowman.



- ☐ If the ratio of circles to triangles is 4:6, draw a bunny peeking out from behind a bush.
- ☐ If the ratio of circles to triangles is 5:6, draw a scarf on the original skater.



- ☐ If the ratio of stars to circles is 1:4, draw a pair of ice skates hanging from the fence.
- ☐ If the ratio of stars to circles is 1:5, draw an owl sitting on the fence.

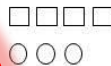
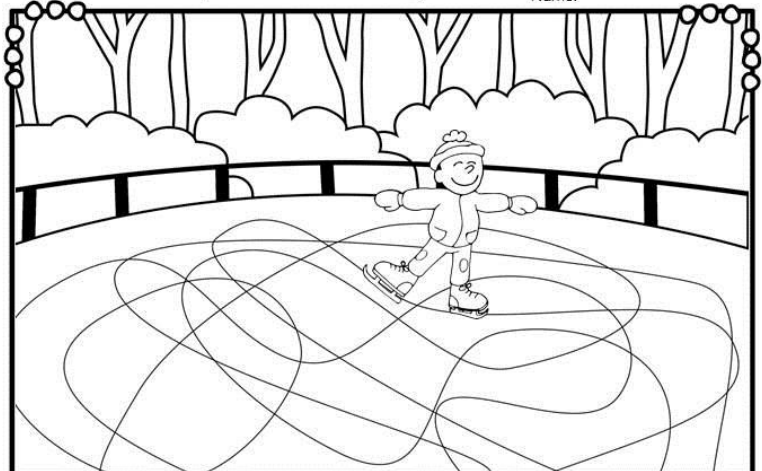


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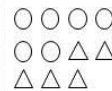
Writing the
Ratios of shapes
– No simplifying

Find the ratio of the shapes and add to the drawing.

Name: _____



- ☐ If the ratio of squares to circles is 4:3, draw another boy ice skater.
- ☐ If the ratio of squares to circles is 4:7, draw the moon in the sky.



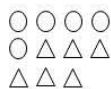
- ☐ If the ratio of circles to triangles is 6:5, draw an ice skating dog.
- ☐ If the ratio of circles to triangles is 5:6, draw leaves on the trees.



- ☐ If the ratio of triangles to squares is 8:2, draw an ice skating bear.
- ☐ If the ratio of triangles to squares is 2:8, draw snow on the bushes and trees.



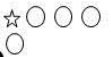
- ☐ If the ratio of squares to circles is 3:2, draw an ice skating snowman.
- ☐ If the ratio of squares to circles is 3:5, make it snow.



- ☐ If the ratio of circles to triangles is 4:6, draw a bunny peeking out from behind a bush.
- ☐ If the ratio of circles to triangles is 5:6, draw a scarf on the original skater.



- ☐ If the ratio of stars to triangles is 4:2, draw a girl ice skater.
- ☐ If the ratio of stars to triangles is 8:3, draw earmuffs on the original ice skater.



- ☐ If the ratio of stars to circles is 1:4, draw a pair of ice skates hanging from the fence.
- ☐ If the ratio of stars to circles is 1:5, draw an owl sitting on the fence.



- ☐ If the ratio of squares to stars is 3:5, draw a sign that says "Ice Skating".
- ☐ If the ratio of squares to stars is 3:4, draw an ice skating reindeer.

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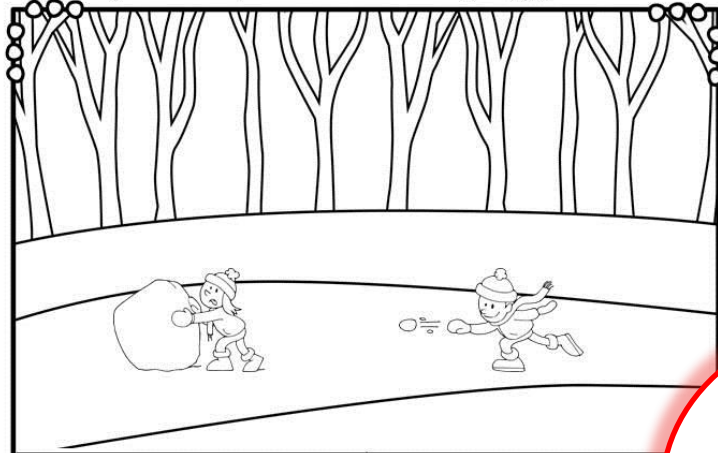
Writing the
Ratios of shapes
– Simplifying

PREVIEW

PREVIEW

Find in the missing number to make equivalent ratios and add to the drawing.

Name: _____



$$\frac{6}{8} = \frac{\quad}{4}$$

- ☐ If the missing numerator is 2, draw a snowball in the boy's right hand.
- ☐ If the missing numerator is 3, draw a boy throwing snowballs at the original boy.

$$\frac{2}{7} = \frac{4}{\quad}$$

- ☐ If the missing denominator is 9, make it snow.
- ☐ If the missing denominator is 14, draw a pile of snowballs next to the original boy.

$$\frac{3}{1} = \frac{9}{\quad}$$

- ☐ If the missing denominator is 6, draw a finished snowman beside the girl.
- ☐ If the missing denominator is 3, draw earmuffs on the girl.

$$\frac{\quad}{6} = \frac{15}{18}$$

$$\frac{\quad}{5} = \frac{4}{10}$$

- ☐ If the missing numerator is 2, draw a snow angel in the snow.
- ☐ If the missing numerator is 1, draw a snow fort.

$$\frac{1}{2} = \frac{3}{\quad}$$

$$\frac{2}{3} = \frac{\quad}{12}$$

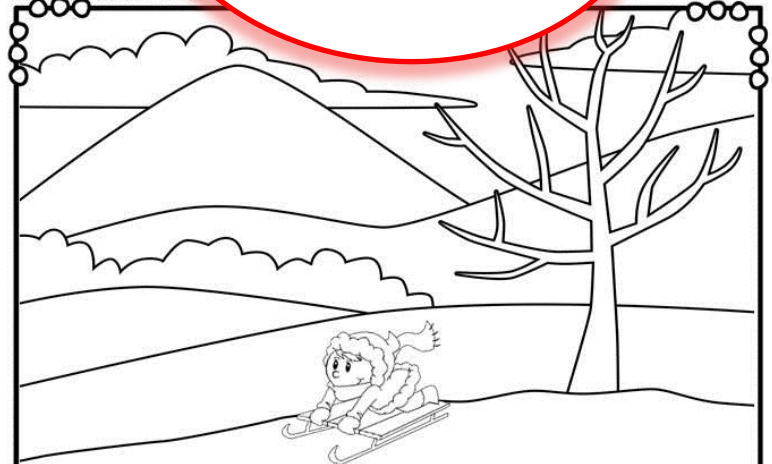
- ☐ If the missing numerator is 8, draw an owl in one of the trees.
- ☐ If the missing numerator is 6, draw a girl sledding on one of the hills.

$$\frac{1}{\quad} = \frac{2}{8}$$

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Writing equivalent ratios

Find in the missing number to make equivalent ratios and add to the drawing.



$$\frac{8}{9} = \frac{\quad}{18}$$

- ☐ If the missing numerator is 15, draw another kid sledding on the hill.
- ☐ If the missing numerator is 16, draw a snowboarder on the hill.

$$\frac{3}{5} = \frac{\quad}{20}$$

- ☐ If the missing numerator is 12, draw a kid climbing the tree.
- ☐ If the missing numerator is 15, make it snow.

$$\frac{2}{1} = \frac{\quad}{2}$$

- ☐ If the missing numerator is 2, draw a ski lift on the mountain.
- ☐ If the missing numerator is 4, draw a cardinal on one of the tree branches.

$$\frac{2}{4} = \frac{\quad}{16}$$

- ☐ If the missing numerator is 8, draw another cloud in the sky.
- ☐ If the missing numerator is 4, draw three trees on the mountain.

$$\frac{2}{\quad} = \frac{6}{27}$$

- ☐ If the missing denominator is 9, draw another tree beside the original tree.
- ☐ If the missing denominator is 7, draw berries on the bushes.

$$\frac{1}{7} = \frac{6}{\quad}$$

- ☐ If the missing denominator is 13, draw a dog playing in the snow.
- ☐ If the missing denominator is 42, draw a pair of mittens hanging from the tree.

$$\frac{4}{7} = \frac{8}{\quad}$$

- ☐ If the missing denominator is 14, draw a pair of skis leaning up against the tree.
- ☐ If the missing denominator is 11, draw a ski lodge on the mountain.

$$\frac{1}{\quad} = \frac{3}{9}$$

- ☐ If the missing denominator is 6, draw another mountain in the background.
- ☐ If the missing denominator is 3, draw ski goggles on the original girl.

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PREVIEW

PREVIEW

Solve the ratio problems and add to the drawing.

Name: _____



3 trees to 1 bird _____

- ☐ If the ratio of trees to birds is 1:3, draw another snowboarder.
- ☐ If the ratio of trees to birds is 3:1, draw another tree by the lodge.

2 snowboarders to 1 skier _____

- ☐ If the ratio of snowboarders to skiers is 2:1, draw a bench outside the lodge.
- ☐ If the ratio of snowboarders to skiers is 1:1, draw smoke coming out of the lodge chimney.

6 snowballs to 5 snowmen _____

- ☐ If the ratio of snowballs to snowmen is 3:2, draw clouds in the sky.
- ☐ If the ratio of snowballs to snowmen is 6:5, make it snow.

2 marshmallows to 3 cups of cocoa _____

- ☐ If the ratio of marshmallows to cups is 2:3, draw a skier on another hill.
- ☐ If the ratio of marshmallows to cups is 3:2, draw a yeti on the highest hill.

5 snowflakes to 3 snowballs _____

- ☐ If the ratio of snowflakes to snowballs is 1:1, draw a ski lift on one of the hills.
- ☐ If the ratio of snowflakes to snowballs is 5:3, draw a ski jump on one of the hills.

6 mittens to 7 children _____

- ☐ If the ratio of mittens to children is 1:1, draw a frozen lake in the background.
- ☐ If the ratio of mittens to children is 6:7, draw a snowman by the lodge.

7 ski hats to 2 snowmen _____

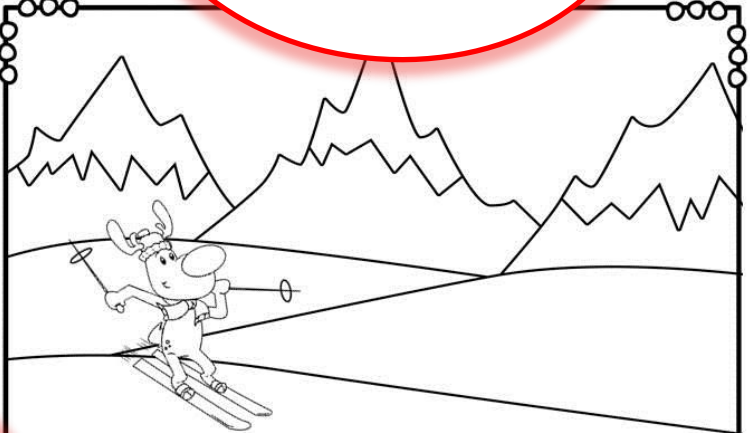
- ☐ If the ratio of hats to snowmen is 1:1, draw a person snowed out.
- ☐ If the ratio of hats to snowmen is 7:2, draw a kid sledding on a hill.

1 jump to 3 snowmen _____

- ☐ If the ratio of jumps to snowmen is 1:3, draw a snowman on the highest hill.
- ☐ If the ratio of jumps to snowmen is 1:3, draw a design on the snow.

Writing ratios from phrases –
No simplifying

Write the ratio in its simplest form.



16 girls to 12 boys _____

- ☐ If 4:3 is the simplest form, draw mittens on the moose.
- ☐ If 8:6 is the simplest form, draw earmuffs on the moose.

3 snowboarders to 1 skier _____

- ☐ If 1:3 is the simplest form, draw a two trees on the left mountain.
- ☐ If 3:1 is the simplest form, draw a tree on the right mountain.

36 snowballs to 18 snowmen _____

- ☐ If 9:2 is the simplest form, draw another mountain in the background.
- ☐ If 4:2 is the simplest form, draw the sun in the sky.

21 marshmallows to 3 cups of cocoa _____

- ☐ If 7:1 is the simplest form, draw two clouds in the sky.
- ☐ If 3:1 is the simplest form, make it snow.

45 snowflakes to 3 snowballs _____

- ☐ If 15:1 is the simplest form, draw a bear skiing next to the moose.
- ☐ If 9:3 is the simplest form, draw a ski jump in front of the moose.

6 mittens to 3 children _____

- ☐ If 6:3 is the simplest form, draw a ski lodge on the middle mountain.
- ☐ If 2:1 is the simplest form, draw two ski racing flags by the moose.

7 ski hats to 8 skiers _____

- ☐ If 7:8 is the simplest form, draw a ski lift on one of the mountains.
- ☐ If 1:2 is the simplest form, draw ski goggles on the moose.

12 jumps to 3 skiers _____

- ☐ If 4:1 is the simplest form, draw a skier falling down the hill on the right.
- ☐ If 3:1 is the simplest form, draw stripes on the moose's scarf.

Writing ratios from phrases –
Simplifying

PREVIEW

PREVIEW

Find the unit rate and add to the drawing.

Name: _____



6 snowflakes in 2 clouds _____

- ☐ If the unit rate is 3 snowflakes per cloud, draw two buttons on the snowman.
- ☐ If the unit rate is 2 snowflakes per cloud, draw three buttons on the snowman.

24 mittens to 12 children _____

- ☐ If the unit rate is 6 mittens per child, draw stripes on the original boy's sweater.
- ☐ If the unit rate is 2 mittens per child, draw earmuffs on the boy.

3 carrots to 3 snowmen _____

- ☐ If the unit rate is 3 carrots per snowman, draw a hat on the snowman.
- ☐ If the unit rate is 1 carrot per snowman, draw a scarf on the snowman.

8 buttons to 2 snowmen _____

- ☐ If the unit rate is 4 buttons per snowman, draw boots on the snowman.
- ☐ If the unit rate is 2 buttons per snowman, draw a big ball of snow.

36 snowballs to 6 snowmen _____

- ☐ If the unit rate is 6 snowballs per snowman, draw another kid beside the snowman.
- ☐ If the unit rate is 3 snowballs per snowman, draw stick arms on the snowman.

16 birds to 4 trees _____

- ☐ If the unit rate is 4 birds per tree, draw a sun in the sky.
- ☐ If the unit rate is 2 birds per tree, draw carrots on the snowman.

150 leaves to 10 trees _____

- ☐ If the unit rate is 15 leaves per tree, draw snow on the tree.
- ☐ If the unit rate is 10 leaves per tree, draw a star on top of the tree.

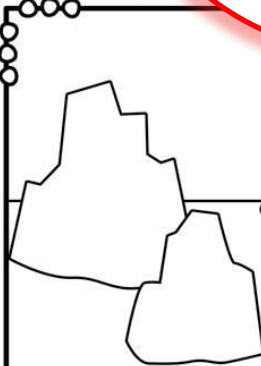
45 marshmallows to 15 snowmen _____

- ☐ If the unit rate is 3 marshmallows per snowman, draw a snowman.
- ☐ If the unit rate is 1 marshmallow per snowman, draw another snowman.

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Writing unit rates from phrases

Find the unit rate and draw.



3 popsicles for \$6.75 or 12 popsicles for \$15.60
Unit Rates = _____

- ☐ If the better buy is 3 batteries, draw another battery in the water.
- ☐ If the better buy is 12 batteries, draw another polar bear.

4 slushies for \$2.40 or 5 slushies for \$3.20
Unit Rates = _____

- ☐ If the better buy is 4 slushies, draw a walrus in the water.
- ☐ If the better buy is 5 slushies, draw a walrus on the bank near the polar bear.

2 candies for \$30.00 or 20 candies for \$40.00
Unit Rates = _____

- ☐ If the better buy is 12 candies, draw a humpback whale in the water.
- ☐ If the better buy is 20 candies, draw a star in the sky.

2 bags of ice for \$1.50 or 3 bags of ice for \$1.80
Unit Rates = _____

- ☐ If the better buy is 2 bags of ice, draw a reindeer in the background.
- ☐ If the better buy is 3 bags of ice, draw a rock at the edge of the water.

2 scarves for \$22.00 or 3 scarves for \$33.30
Unit Rates = _____

- ☐ If the better buy is 2 scarves, draw the moon in the sky.
- ☐ If the better buy is 3 scarves, draw a submarine in the water.

4 hats for \$28.00 or 5 hats for \$34.50
Unit Rates = _____

- ☐ If the better buy is 4 hats, draw an orca whale in the water.
- ☐ If the better buy is 5 hats, draw waves in the water.

16 oz. of cocoa for \$4.00 or 36 oz. of cocoa for \$10.80
Unit Rates = _____

- ☐ If the better buy is 16 oz., draw a seal on the tall iceberg.
- ☐ If the better buy is 36 oz., draw a seal on the small iceberg.

12 oz. of milk for \$1.80 or 16 oz. of milk for \$3.20
Unit Rates = _____

- ☐ If the better buy is 12 oz., draw an arctic hare on the hill.
- ☐ If the better buy is 16 oz., draw an arctic fox on the hill.

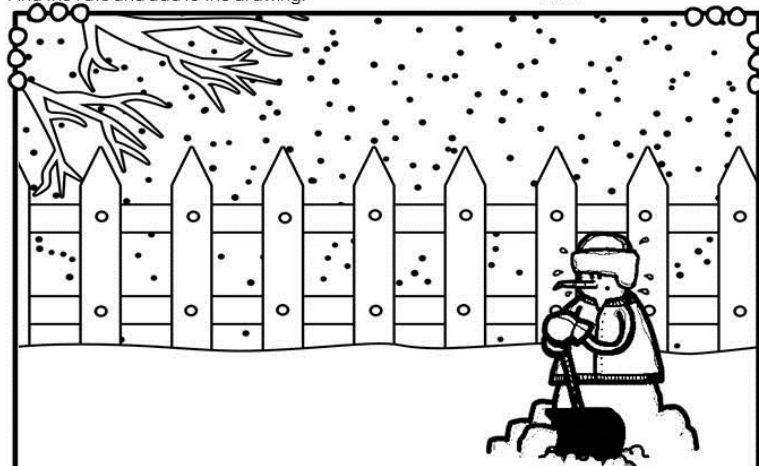
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Unit Rates – Better Buys

PREVIEW

Find the rate and add to the drawing.

Name: _____



1) It is snowing at a rate of 2 inches per hour. At that rate, how long will it take to snow 12 inches?

- ☐ If it would take 4 hours, draw another snowman.
- ☐ If it would take 6 hours, draw a big pile of snow by the original snowman.

2) Joe makes 8 snowballs per minute. How many snowballs will he make in one hour?

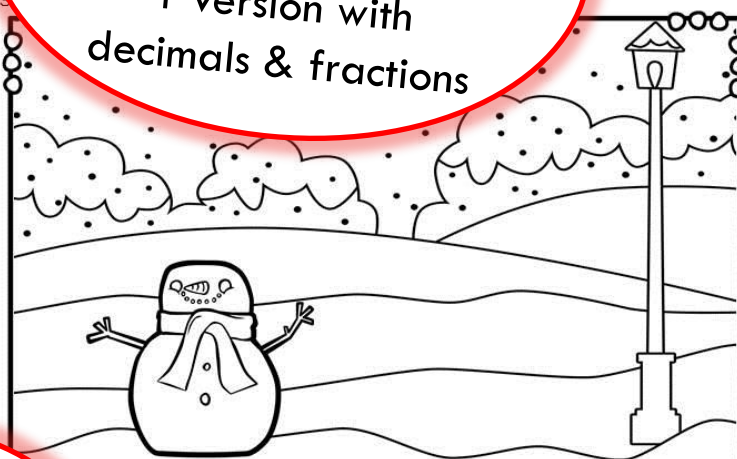
- ☐ If he makes 48 snowballs, draw a snow shovel leaning against the fence.
- ☐ If he makes 480 snowballs, draw a bird perched on the fence.

3) Frosty shovels snow at a rate of one 10 lb. shovelful every 5 seconds. How many pounds of snow does Frosty shovel in 15 minutes?

- ☐ If he shovels 1800 lbs., draw a gate in the fence.
- ☐ If he shovels 15 lbs., draw an evergreen wreath on the fence.

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Understanding Unit Rates – 1 version with whole numbers, 1 version with decimals & fractions



24
3

If the numerator is 4, draw a broom in the snowman's left hand.
If the numerator is 6, draw a snowball in the snowman's right hand.

boards to 21 skiers

If the ratio of snowboarders to skiers is 1:7, draw another street lamp behind the snowman.

- ☐ If the ratio of snowboarders to skiers is 7:1, draw another snowman.

3) Mr. Jackson drinks an 8 oz. cup of cocoa each day. How long will it take him to finish the can of 132 oz. of cocoa?

- ☐ If it will take him 20 days, draw two carolers beside the original street lamp.
- ☐ If it will take him 16 days, draw an evergreen wreath on the original street lamp.

6 mittens to 2 children

- ☐ If the ratio of mittens to children is 2:1, draw earmuffs on the original snowman.
- ☐ If the ratio of mittens to children is 3:1, draw clouds in the sky.

2 hats for \$9.50 or 4 hats for \$19.40

Unit Rates = _____

- ☐ If the better buy is 2 hats, draw a hat on the original snowman.
- ☐ If the better buy is 4 hats, draw mittens on the original snowman.

6) It is snowing at a rate of $2\frac{1}{4}$ inches per hour. At that rate, how long will it take to snow 9 inches?

- ☐ If it will take 5 hours, draw a bell in the right hand of the original snowman.
- ☐ If it will take 4 hours, draw a cookie in his right hand.

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Mixed Review Page

PREVIEW

PREVIEW

PREVIEW



Challenge Page

Name: _____

Challenge #1:

Choose a drawing prompts from the page what was not correct. Create a new ratio problem that fits the prompt, and add the drawing to the original page.

Example:

Original Ratio Problem	Drawing Prompts	New Ratio Problem
□ □ □ □ ○ ○ ○	☒ If the ratio of squares to circles is 4:3, draw another boy ice skater. ☒ If the ratio of squares to circles is 4:7, draw the moon in the sky.	□ □ □ □ ○ ○ ○ ○ ○ ○ ○

Challenge #1 Workspace:

Challenge #2:

Create a new ratio problem and write two new drawing prompts. One must be correct, the second is your choice to make correct or incorrect.

New Equation	Drawing Prompts

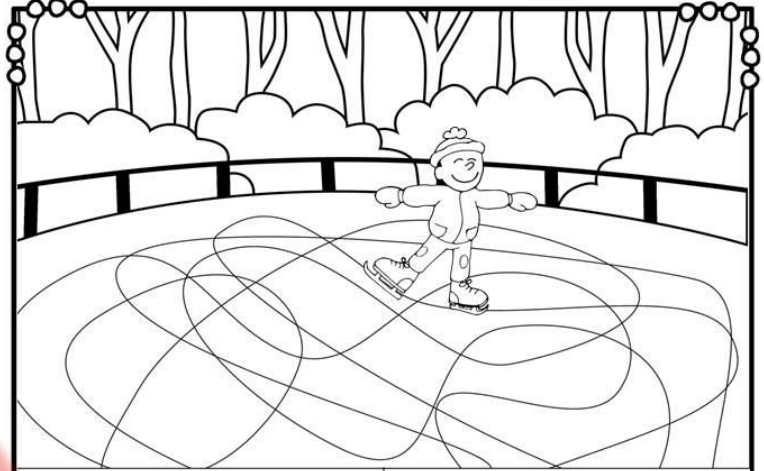
Challenge Page –
Can be used with
any page

Answer Keys
provided for
each page

PREVIEW

Find the ratio of the shapes and add to the drawing.

Name: _____



□ □ □ □ ○ ○ ○	☒ If the ratio of squares to circles is 4:3, draw another boy ice skater. ☒ If the ratio of squares to circles is 4:7, draw the moon in the sky.	○ ○ ○ ○ ○ ○ △ △ △ △ △	☒ If the ratio of circles to triangles is 6:5, draw an ice skating dog. ☒ If the ratio of circles to triangles is 5:6, draw leaves on the trees.
△ △ □ □ □ □ □ □ □ □	☒ If the ratio of triangles to squares is 8:2, draw an ice skating bear. ☒ If the ratio of triangles to squares is 2:8, draw snow on the bushes and trees.	□ □ □ ○ ○	☒ If the ratio of squares to circles is 3:2, draw an ice skating snowman. ☒ If the ratio of squares to circles is 3:5, make it snow.
○ ○ ○ ○ ○ △ △ △ △ △ △	☒ If the ratio of circles to triangles is 4:6, draw a bunny peeking out from behind a bush. ☒ If the ratio of circles to triangles is 5:6, draw a scarf on the original skater.	☆ ☆ ☆ ☆ ☆ ☆ ☆ ☆ △ △ △	☒ If the ratio of stars to triangles is 4:2, draw a girl ice skater. ☒ If the ratio of stars to triangles is 8:3, draw earmuffs on the original ice skater.
☆ ○ ○ ○ ○	☒ If the ratio of stars to circles is 1:4, draw a pair of ice skates hanging from the fence. ☒ If the ratio of stars to circles is 1:5, draw an owl sitting on the fence.	□ □ □ ☆ ☆ ☆ ☆ ☆	☒ If the ratio of squares to stars is 3:5, draw a sign that says "Ice Skating". ☒ If the ratio of squares to stars is 3:4, draw an ice skating reindeer.

Thank you for previewing!

Please contact me at activatededucation@gmail.com or via my store Q&A you have any questions, concerns, or feedback. Thank you!



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TpT Store!

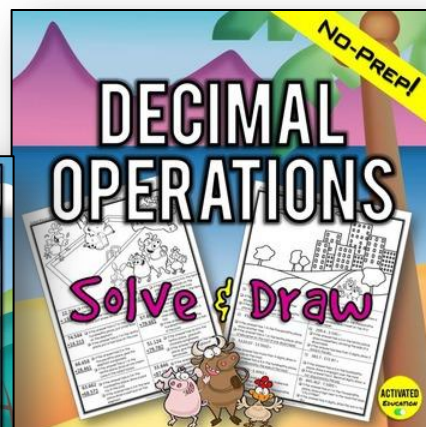
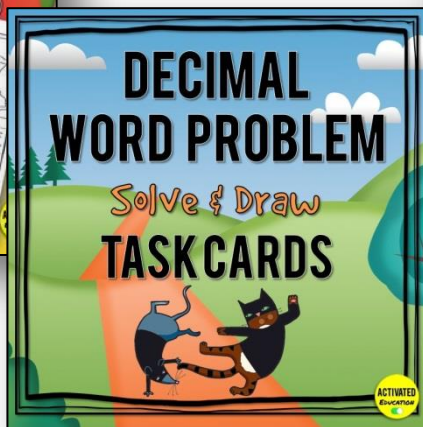
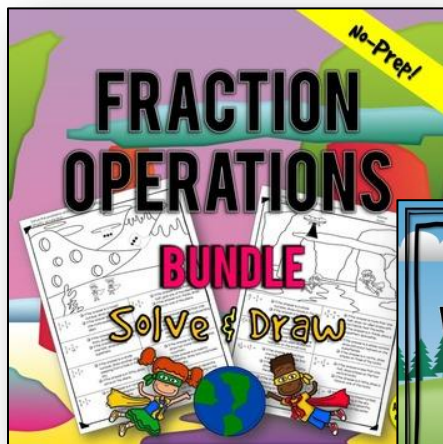


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