Math 8

Module 2 Blackline Masters

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Lesson 2.1B Try It!
Activity 1

1. Remember: If the signs are different, the answer is negative.

a. $4 \times (-3) =$

b. $-4 \times 3 =$

c. $12 \div 1 =$

d. $-1 \times 12 =$

e. $12 \div (-4) =$

f. $-12 \div 4 =$

g. $2 \times (-6) =$

h. $-2 \times 6 =$

i. $-12 \div 3 =$

j. $12 \div (-3) =$

k. $12 \div 3 =$

l. $-12 \times 1 =$

m. $12 \times (-1) =$

n. $12 \div 2 =$

o. $12 \div (-2) =$

p. $12 \div (-6) =$

q. $-12 \div 6 =$

r. $3 \times (-4) =$

s. $4 \times 3 =$

t. $6 \times 2 =$

u. $-6 \times 2 =$

v. $6 \times (-2) =$

2. Winter is coming and the temperature is dropping. The weather forecast says to expect the temperature to go down by 3°C every day for the next 5 days. How much colder will it be on the fifth day than it is today?

3. Margaret, Halim, and André have decided to close the store that they owned together. Their company is $900 in debt. They want to split the debt equally between the three of them. How much does each of them owe?

Lesson 2.1B Try It!
Activity 2

When multiplying or dividing,
if the signs are the SAME (both + or both –)
the answer is POSITIVE.

1. $4 \times 5 =$

2. $-4 \times (-5) =$

3. $4 \times (-5) =$

4. $20 \div 4 =$

5. $-20 \div (-5) =$

6. $-10 \times (-2) =$

7. $-20 \div (-2) =$

8. $20 \div 2 =$

9. $-1 \times (-20) =$

10. $3 \times (-8) =$

11. $-24 \div 8 =$

12. $-4 \times 6 =$

13. $24 \times (-1) =$

14. $24 \div (-4) =$

15. $2 \times (-12) =$

16. $-24 \div 3 =$

17. $-24 \div 1 =$

18. $(-7 \times (-7) =$

19. $7 \times 7 =$

20. $49 \div (-7) =$

21. $49 \div 7 =$

22. $-5 \times (-5) =$

23. $5 \times 5 =$

24. $-25 \div (-25) =$

25. $-1 \times (-5) =$

26. $-4 \times (-4) =$

27. $4 \times 4 =$

28. $16 \div (-4) =$

29. $-16 \div 4 =$

30. $4 \div 2 =$

31. $4 \div (-2) =$

32. $-4 \div 2 =$

33. $-4 \div (-2) =$

34. $56 \div 8 =$

Lesson 2.1B Try It!
Activity 3

When multiplying or dividing,
if there are an EVEN number of negative signs, the answer is POSITIVE.
If there are an ODD number of negative signs, the answer is NEGATIVE.

1. $\dfrac{12}{(3)(-1)(2)}$

2. $\dfrac{(3)(-3)(-7)}{(-9)}$

3. $(4)(5)(-1)$

4. $\dfrac{(-16)(25)(-2)}{(10)(-4)}$

5. $(2)(-5)(7)(-2)$

6. $\dfrac{(6)(-4)(2)}{-12}$

7. $\dfrac{(24)(-14)}{(-8)(-7)(-1)}$

8. $\dfrac{(8)(-7)}{4(14)}$

9. $(-1)(2)(-3)(4)(-5)$

10. $\dfrac{(-15)(6)}{-9}$

11. $(5)(-3)(2)$

12. $\dfrac{(-21)(9)}{(7)(-3)}$

Lesson 2.1C Try It!
Activity 1

Solve the following.

1. $(-3)(7) =$

2. $4 \times 9 =$

3. $-13 \times 3 =$

4. $42 \div (-6) =$

5. $(8)(-1)(-4) =$

6. $12 + 6 =$

7. $15 \div 5 + 7 =$

8. $2 - 3 \times 4 =$

9. $3 + \frac{4}{2} =$

10. $-16 + (4)(3) =$

11. $-5 - (2)(-1)(-18) \div 4 =$

12. $6 \times 5 \div 3 =$

13. $18 \div 2 + 4 =$

14. $18 \div (2 + 4) =$

15. $6 \times 8 + 12 + 3 \times 9 =$

16. $3 + 11 \times 4 + 12 \div 3 =$

17. $7 - 3 \times 5 =$

18. $(7 - 3) \times 5 =$

19. $36 \div 9 + 2 + 1 \times 9 + 6 - 5 =$

20. $6 \times 7 \div 14 - 3 + 2 \times 4 =$

21. $5 - 1 + 2 - 4 \times 3 \div 6 =$

22. a. Make up a question that has an answer of 5. Use at least 3 numbers. Use at least 2 different operations.

b. Show how to solve your question.

23. a. Make up a question that has an answer of –2. Use at least 4 numbers. Use at least 3 different operations.

b. Show how to solve your question.

24. a. Make up a question that uses all of these symbols exactly once.

1 2 3 4 5 6 7 8 9 + + – – × ÷

For example: 12 ÷ 3 + 4 – 5 × 6 + 7 – 89

b. Show how to solve your question.

Lesson 2.1C
Warm-up

Answer the questions. Then look up each answer in the Decoder Table. Put the letter than matches the answer in the blank beside the questions.

For example: 1. –4 – 3 = –7, which matches A in the Decoder Table. Put an "A" in the blank beside 1.

A	1.	$-4 - 3 = -7$
___	2.	$\frac{(-5)(-1)(-2)(3)}{6}$
___	3.	$18 \div 3 =$
___	4.	$14 \div -7 =$
___	5.	$-3 \times -4 =$
___	6.	$(-6)(-8) =$
___	7.	$-3 + 9 =$
___	8.	$4 + 5 + 3 =$
___	9.	$\frac{-21}{-3}$
___	10.	$-8 + 6 =$
___	11.	$\frac{18(7)(-4)}{(-14)(3)}$
___	12.	$-5 + 30 =$

Decoder Table

A	-7
D	48
E	-1
F	7
G	9
H	-2
I	6
M	5
N	25
O	2
P	-5
S	12
T	-6
W	-25

Now unscramble the letters to solve the riddle. The A for question 1 has already been written in.

What do sea monsters eat?

___	___	___	___		**A**	___	___		___	___	___	___	___	
9	**3**	**11**	**4**		**1**	**12**	**6**		**5**	**10**	**7**	**2**	**8**	

Section Assignment 2.1
Multiplying and Dividing Integers

Answer these questions without your calculator. Show all your work. (1 mark each)

a. $12 \times (-4)$

b. $-36 \div (-3)$

b. -2×9

d. $\frac{-24}{3}$

e. $56 \div (-7)$

f. $-9 \times (-6)$

Answer these questions without your calculator. Show all your work. (2 marks each)

a. $-7 + 2 \times 5$

b. $(-9)(-2)(-1)$

c. $18 \div 3 - 9$

d. $(2)(-3) + 7$

Answer these questions without your calculator. Show all your work. (3 marks each)

a. $24 \div (2 - 5) + 7$

b. $5 - 4 \times 3 + (3)(-2)$

c. $\dfrac{(42)(-12)}{(7)(-2)(9)}$

d. $4 \times 6 \div 3 - (7)(4) + 10$

e. $-5 + 2 - 8 + 10 - 3$

f. $(-3)(5) + 7 - (8)(2) + 3$

g. $-(-5)(-2) - 24 \div 8 + 6 \div 3$

h. $(-1 + 4) \times 3 + 5$

4. Jamie wants to know how long one bag of dog food should last. She weighed one day's worth of food. It weighed 500 g. A bag of dog food weighs 22 kg.

How long does a bag of dog food last at Jamie's house?

Think about groups, items, and total when you solve this question. (3 marks)

5. Chris' job at the Burger Hut is going really well. His wage was recently increased from $9/hr to $11/hr.

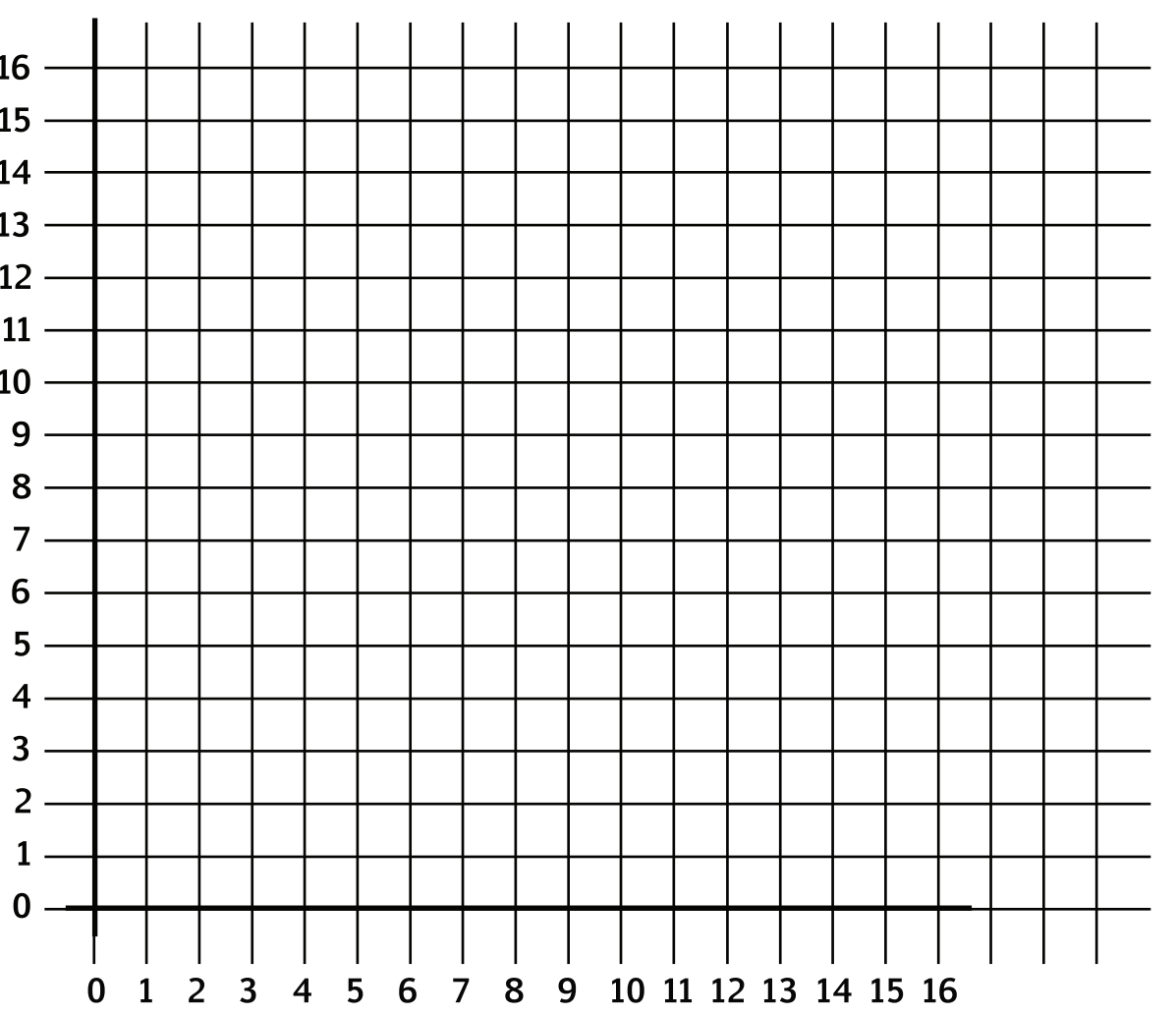
   a. Chris normally works about 15 hours in one week. How much money did Chris make in a normal week, when he was being paid $9 for every hour?

      Think about groups, items, and total when you solve this question. (3 marks)

b. Now that Chris earns $11 for every hour that he works, how much money does Chris make in a normal week? (3 marks)

c. How much more money does Chris make now? (3 marks)

Evaluation Guidelines	Marks
Calculations	/38
Word Problems	/12
Total Marks	/50


16
15
14
13
12
11
10
9
8
7
6
5
4
3
2
1
0
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16

Lesson 2.2B Try It!
Activity 4

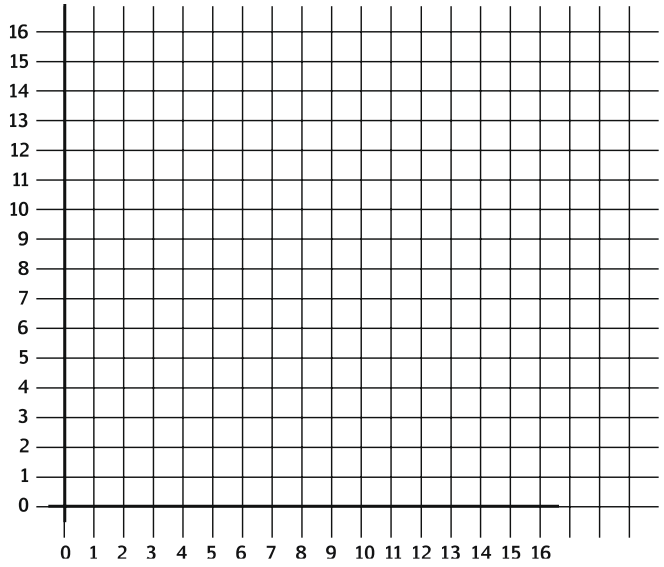
1. How many perfect squares are there between 1 and 100 (including 1 and 100)?

   List all the perfect squares between 1 and 100 (including 1 and 100).

   How can you be sure that your list is complete?

2. Draw a diagram to represent this equation:

$\sqrt{25} = 5$



3. a. Four squared equals _____. $4^2 =$ _____

   b. Nine is _____ squared. $9 =$ _____^{2}

   c. _____ is the square root of four. _____ $= \sqrt{4}$

   d. One is the square root of _____. $1 = \sqrt{\_\_}$

   e. The square root of nine is _____. $\sqrt{9} =$ _____

   f. _____ is the square root of twenty-five. _____ $= \sqrt{25}$

4. 1^2 = _____ $\sqrt{1}$ = _____

2^2 = _____ $\sqrt{4}$ = _____

3^2 = _____ $\sqrt{9}$ = _____

4^2 = _____ $\sqrt{16}$ = _____

5^2 = _____ $\sqrt{25}$ = _____

6^2 = _____ $\sqrt{36}$ = _____

7^2 = _____ $\sqrt{49}$ = _____

8^2 = _____ $\sqrt{64}$ = _____

9^2 = _____ $\sqrt{81}$ = _____

10^2 = _____ $\sqrt{100}$ = _____

Lesson 2.2C Try It!
Activity 1

Complete each statement with the correct comparison symbol: =, <, or >.

1. $7 \square 3 + 4$

2. $-6 \square 5$

3. $2 \square 3$

4. $\sqrt{16} \square 4$

5. $8 \square 3^2$

6. $(-4)(-5) \square 12$

7. $3 \square \sqrt{25}$

8. $-6 + 5 \square 5 - 6$

9. $6^2 \square 36$

10. $5 \square \sqrt{36}$

11. $-24 \div 4 \square 3 - 10$

12. $2 \square 2^2$

13. $(-15)^2 \square (-15) \times (-15)$

14. $\sqrt{9} \square -2 + 5$

Lesson 2.2C Try It!
Activity 3

1. Make a list of the first 10 perfect squares.

   1^2 = _____

   2^2 = _____

   3^2 = _____

   4^2 = _____

   5^2 = _____

   6^2 = _____

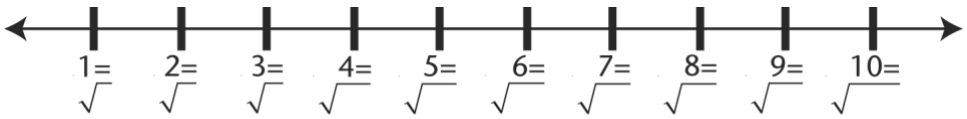
   7^2 = _____

   8^2 = _____

   9^2 = _____

   10^2 = _____

2. Complete this number line.



3. Use the number line you made to answer these questions. The first one is done for you.

   a. $2 < \sqrt{7} < 3$ $\sqrt{7}$ is between 2 and 3

   b. $4 < \sqrt{22} < \square$ $\sqrt{22}$ is between $\square$ and $\square$

   c. $\square < \sqrt{13} < \square$ $\sqrt{13}$ is between $\square$ and $\square$

d. $\square < \sqrt{61} < \square$ $\sqrt{61}$ is between $\square$ and $\square$

e. $\square < \sqrt{74} < \square$ $\sqrt{74}$ is between $\square$ and $\square$

f. $\square < \sqrt{42} < \square$ $\sqrt{42}$ is between $\square$ and $\square$

g. $\square < \sqrt{5} < \square$ $\sqrt{5}$ is between $\square$ and $\square$

h. $\square < \sqrt{57} < \square$ $\sqrt{57}$ is between $\square$ and $\square$

i. $\square < \sqrt{29} < \square$ $\sqrt{29}$ is between $\square$ and $\square$

j. $\square < \sqrt{3} < \square$ $\sqrt{3}$ is between $\square$ and $\square$

k. $\square < \sqrt{32} < \square$ $\sqrt{32}$ is between $\square$ and $\square$

l. $\square < \sqrt{95} < \square$ $\sqrt{95}$ is between $\square$ and $\square$

4. a. Is $\sqrt{7}$ closer to 2 or closer to 3?

b. Which of these numbers is the best estimate of $\sqrt{7}$?

2.2 2.5 2.7

Lesson 2.2D Try It!
Activity 2

Use your calculator.

1. First, use estimation to check that your calculator is giving you reasonable answers. Then, write down your calculator's answers for these questions. The first one is done for you.

   This squiggly line ≈ means "approximately equal to."

   a. $\underline{1} < \sqrt{2} < \underline{2}$

      $\sqrt{2} \approx 1.414213562373095048801688724209 7$

   b. $\square < \sqrt{7} < \square$

      $\sqrt{7} \approx$ _____

   c. $\square < \sqrt{18} < \square$

      $\sqrt{18} \approx$ _____

   d. $\square < \sqrt{95} < \square$

      $\sqrt{95} \approx$ _____

   e. $\square < \sqrt{34} < \square$

      $\sqrt{34} \approx$ _____

   f. $\square < \sqrt{42} < \square$

      $\sqrt{42} \approx$ _____

   g. $\square < \sqrt{27} < \square$

      $\sqrt{27} \approx$ _____

2. Why do you think that the calculator's answer is called an approximation?

Lesson 2.2D
Warm-up

1. a. $\sqrt{1}$ = b. $\sqrt{4}$ =

   c. $\sqrt{9}$ = d. $\sqrt{16}$ =

   e. $\sqrt{25}$ = f. $\sqrt{36}$ =

   g. $\sqrt{49}$ = h. $\sqrt{64}$ =

   i. $\sqrt{81}$ = j. $\sqrt{100}$ =

Use your calculator.

2. Compute these squares. Remember: $4.7^2 = 4.7 \times 4.7$

   a. 386^2 =

   b. 29.4^2 =

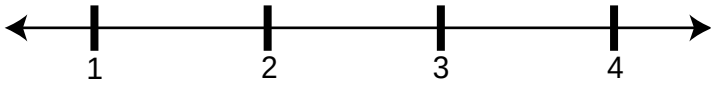
   c. 1.89^2 =

   d. 29^2 =

   e. 4.3^2 =

   f. 1.6^2 =

3. Where should $\sqrt{2}$ be on this number line?



$\sqrt{2}$ is between ☐ and ☐

☐ < $\sqrt{2}$ < ☐

4. Practice rounding to the nearest thousandth to get ready for this lesson.

This is the thousandths place.	**2.867 31** ↑
Look here for the clue.	**2.867 31** ↑
3 is less than 5, so keep the thousandths digit the same and drop the other ones. (If the next digit over had been 5 or greater, we would have changed the 7 to an 8.)	2.867 31 ≈ 2.867

That squiggly equals sign means “is approximately equal to.”

Now it’s your turn. Round these numbers to the nearest thousandth.

a. 1.863 95 ≈

b. 4.217 36 ≈

c. 0.981 6 ≈

d. 93.812 493 7 ≈

e. 6.413 51 ≈

f. 15.218 75 ≈

g. 36.246 203 ≈

h. 7.812 84 ≈

i. 63.512 1 ≈

Section Assignment 2.2
Squares and Square Roots

Do all of your work without your calculator except where noted. Show all your work. If you show your answer only, you will not get full marks.

1. Answer these questions. (3 marks)

    a. Is 7 a perfect square?

    b. Is 4 a perfect square?

    c. Is 12 a perfect square?

2. Make a list of the first ten perfect squares. (1 mark)

3. Calculate these squares. Remember to show your work. (4 marks)

a. $12^2 =$

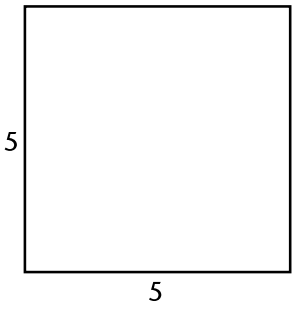
b. $15^2 =$

c. $16^2 =$

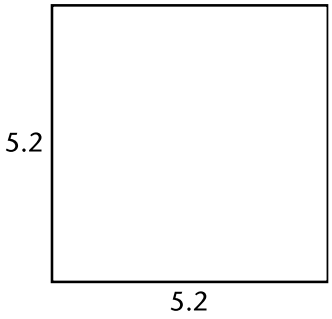
d. $20^2 =$

4. Calculate the area of these squares. (2 marks)

a.



b.



5. Calculate. (4 marks)

a. $2^2 =$ ___

b. ___$^2 = 4$

c. $\sqrt{4} =$ ___

d. $2 = \sqrt{\_\_\_\_}$

6. Calculate these square roots. (4 marks)

a. $\sqrt{25}$ =

b. $\sqrt{1}$ =

c. $\sqrt{16}$ =

d. $\sqrt{100}$ =

7. Calculate these squares. (7 marks)

a. 3^2 =

b. $(-7.1)^2$ =

c. 6^2 =

d. 1^2 =

e. 2.2^2 =

f. 4^2 =

g. $(-1.3)^2$ =

8. Circle the answers in question 7 that are perfect squares. (3 marks)

9. Solve. (2 marks each)

a. $(4 - 2)^2 + (-3)(-4) - 10$ =

b. $(-3 + 1)(6 - 7) + 3^2$ =

c. $4^2 \div 8 + 3$ =

10. $\sqrt{19}$ is between 4 and 5. List three more square roots that are between 4 and 5. (2 marks)

11. Complete each statement with:

> (greater than)

< (less than)

= (6 marks)

$\sqrt{7}$ ___ 3

$\sqrt{16}$ ___ 4

$\sqrt{21}$ ___ 4

$\sqrt{4}$ ___ 2

$\sqrt{31}$ ___ 6

$\sqrt{51}$ ___ 7

12. a. Is $\sqrt{2}$ an irrational number? (1 mark)

b. Is $\sqrt{3}$ an irrational number? (1 mark)

c. Is $\sqrt{4}$ an irrational number? (1 mark)

Use your calculator for questions 13 and 14.

13. Round your answer to the nearest thousandth. (4 marks)

a. $\sqrt{12}$ =

b. 1.37^2 =

c. $\sqrt{51}$ =

d. 37.86^2 =

14. Round your answer to the nearest hundredth. (5 marks)

a. $\sqrt{37}$ =

b. 5.62^2 =

c. 4.39^2 =

d. $\sqrt{32}$ =

e. $(-1.7)^2$ =

Evaluation Guidelines	Marks
Calculations by Hand	/41
Use Your Calculator	/9
Total Marks	/50

Lesson 2.3A Explore
Squares and Right Triangles

For this lesson you will need:

- 2 sheets of graph paper
- coloured pencils
- scissors

In this activity you're going to build a proof of a famous mathematical theorem.

Step 1: Draw a right triangle. You need to decide how big it will be.

It doesn't matter how long the legs are. However, this activity will be easier to follow along with if the legs are of different sizes.

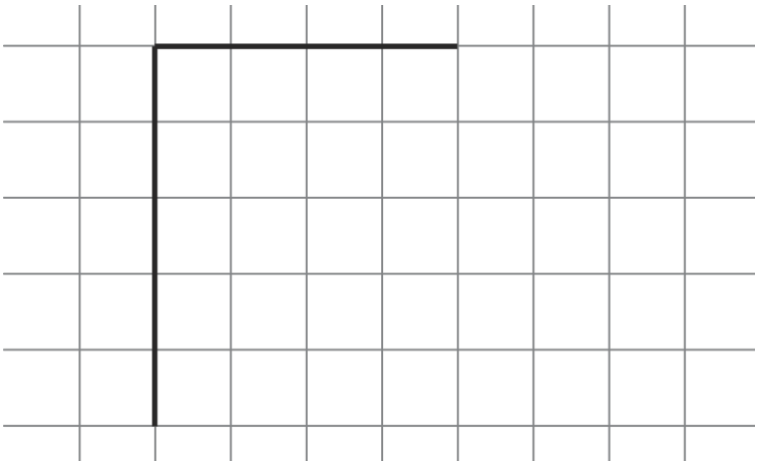
You will be repeating this triangle on your graph paper, so don't make your triangle too big. Choose a number between 2 and 6 for each leg of your triangle.

Fill in the blanks:

One leg of my triangle will be ____ units long.

The other leg of my triangle will be ____ units long.

Using the grid on your graph paper as a guide, draw the two legs of your right triangle in the upper left hand corner of the page.



In this example, one leg is 4 units long and the other is 5 units long. Your triangle can be different as long as it has a right angle.

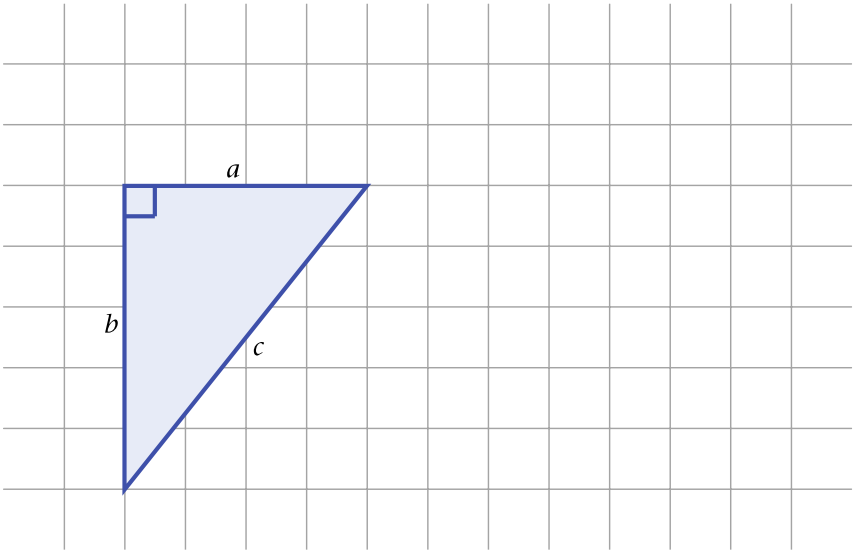
Step 2: Draw the hypotenuse of your triangle.

Colour the triangle blue.

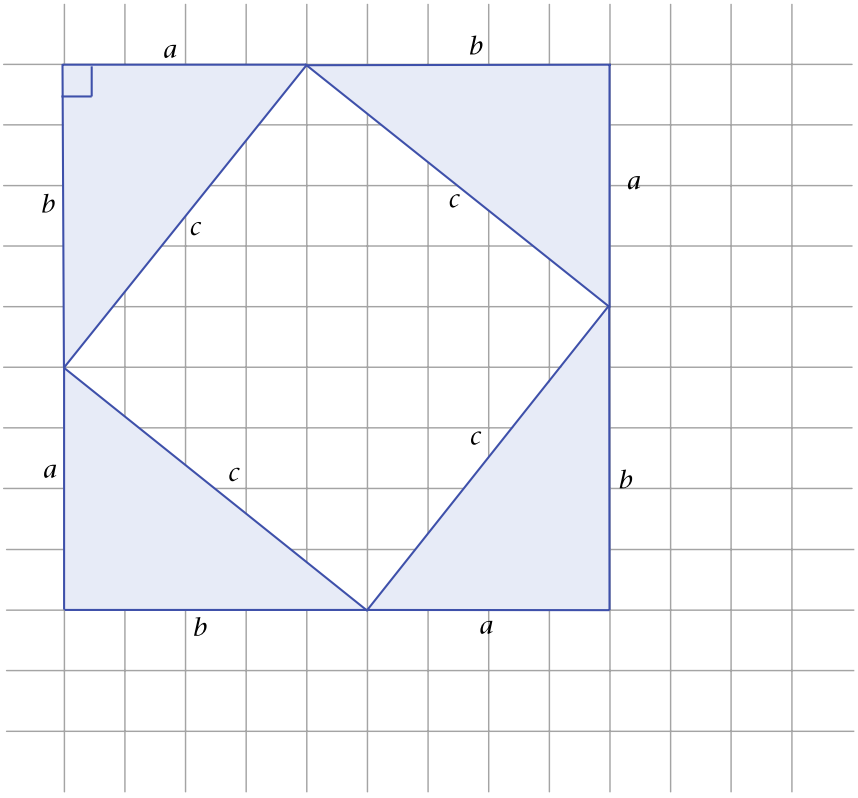
Label the short leg *a*.

Label the long leg *b*.

Label the hypotenuse *c*.



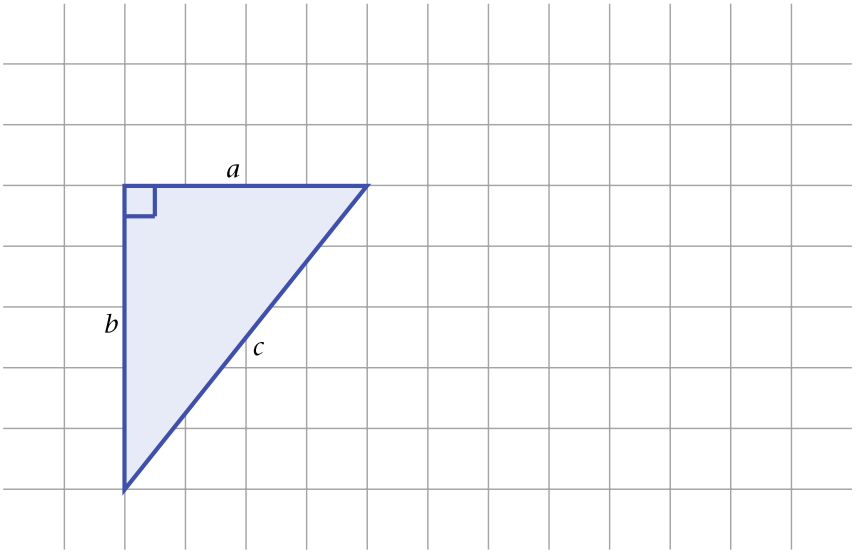
Step 3: Using the picture as a guide, draw three copies of your triangle. Colour them blue. Label the sides as you did in Step 2.



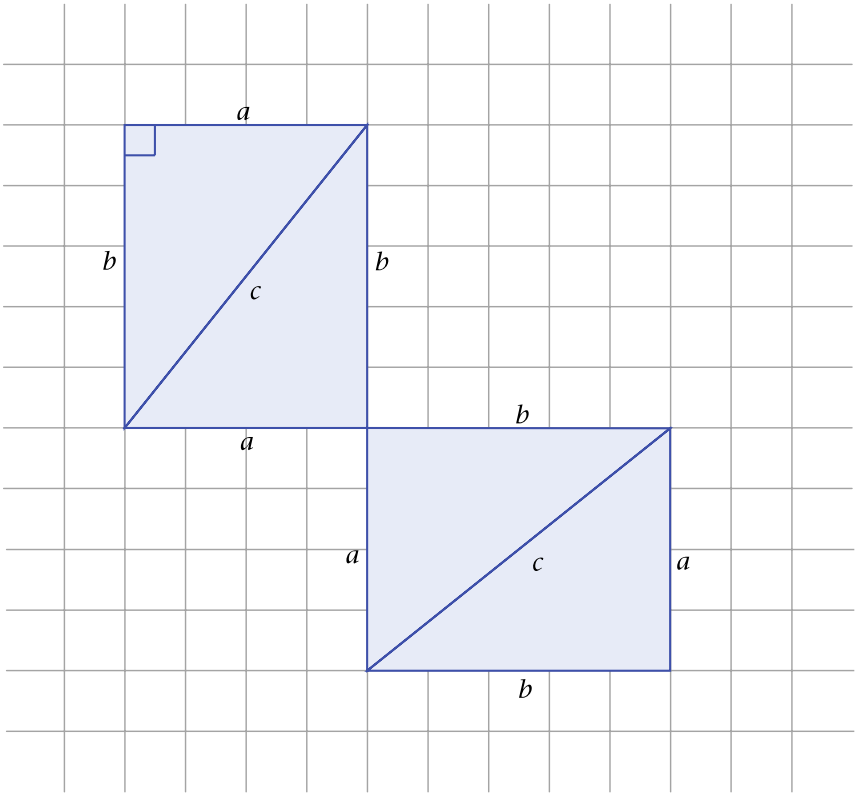
Examine the large square you have made. Can you see that the length of each side is $a + b$?

Look at the smaller white square inside. The length of each side of this square is c. The area of this square is c^2. Write "c^2" in the middle of the square.

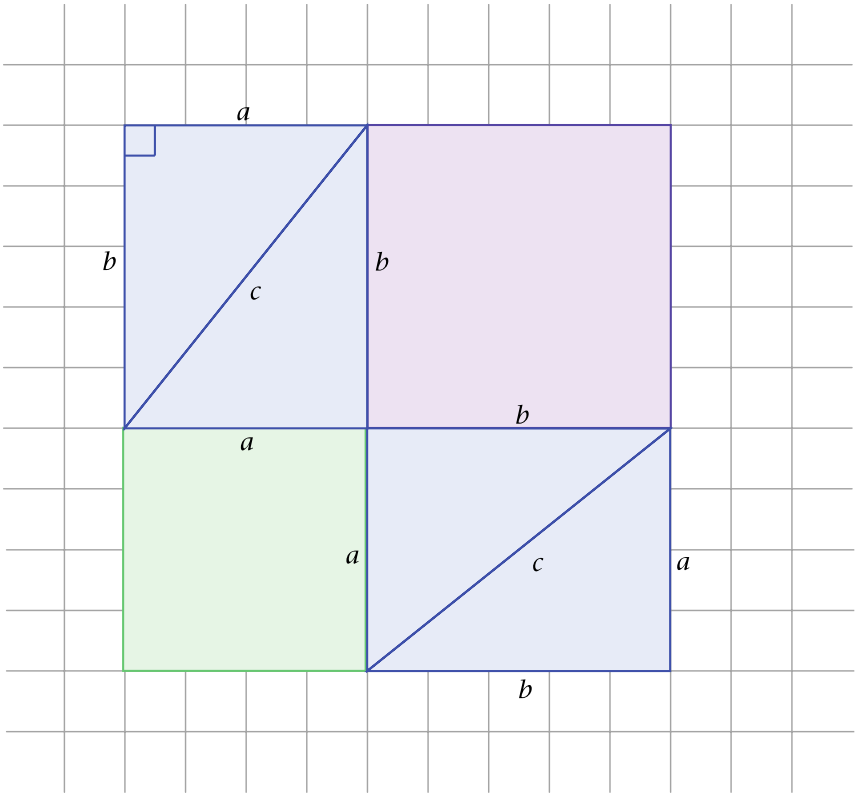
Step 4: On another sheet of graph paper, repeat Steps 1 and 2 with the same size of triangle that you have been using so far.



Step 5: Using the picture as a guide, draw three copies of your triangle. Colour them blue. Label the sides.



Step 6: Using the picture as a guide, draw a square that encloses all of your triangles.

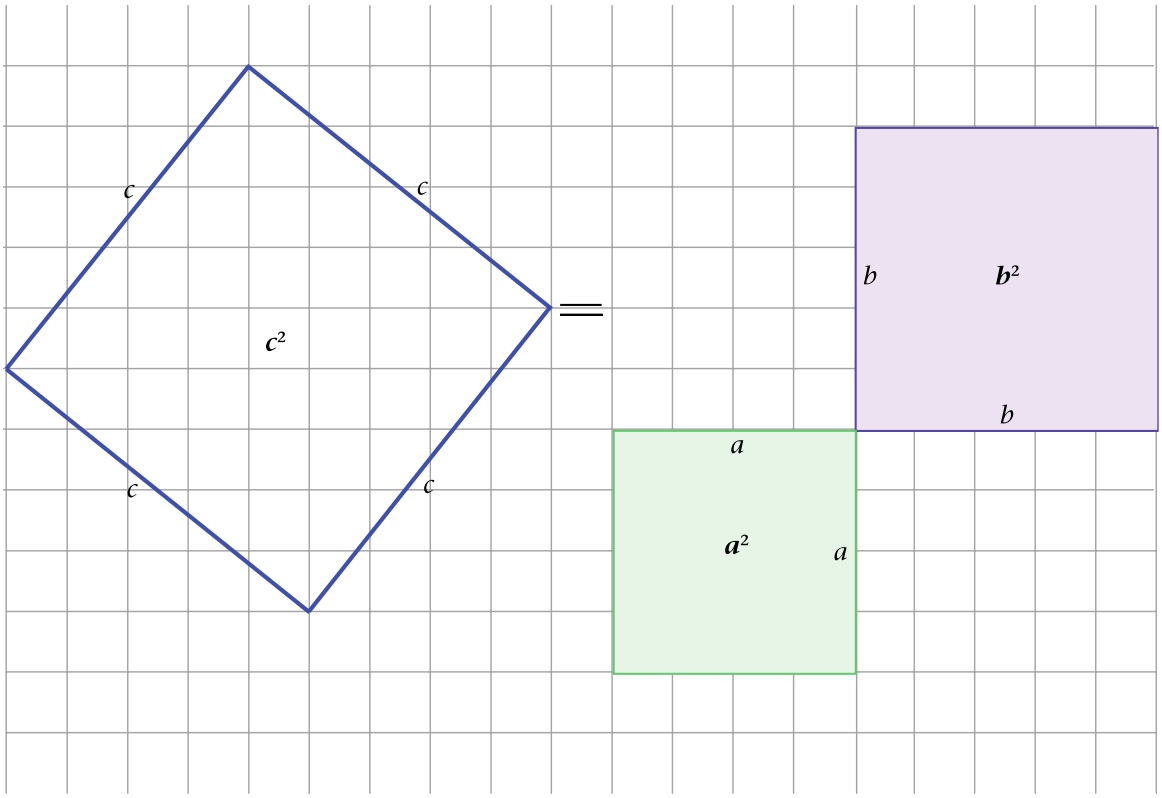


Now there are two squares inside your big square. Colour the smaller one green. Colour the other one purple.

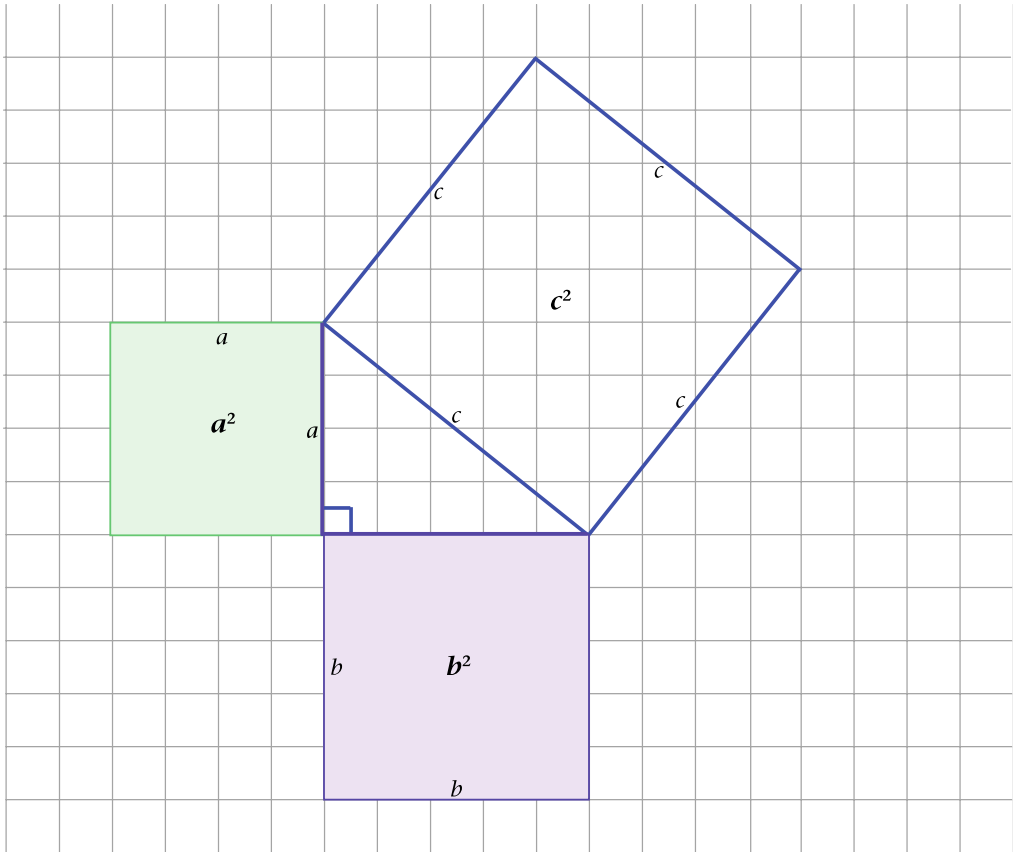
The length of each side of the green square is a. Its area is a^2. Write "a^2" in the middle of the green square.

The length of each side of the purple square is b. Its area is b^2. Write "b^2" in the middle of the purple square.

Examine the large square you have made. Can you see that the length of each side is $a + b$? It is exactly the same size as the first square you made!

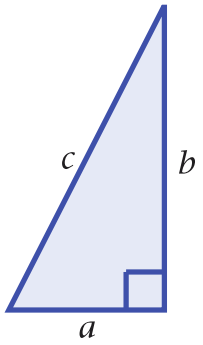


Step 7: Cut out one of your blue triangles. Cut out the squares. Arrange them as shown in the picture.



Try that activity again with right triangles of a different size. Maybe one leg is 3 squares long and the other is 7. Make four identical right triangles, and do the activity again.

You have just done a geometric proof of the Pythagorean Theorem!



The Pythagorean Theorem

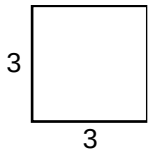
$a^2 + b^2 = c^2$

Even though Pythagoras was not the first to understand this property of right triangles, he was the first (we think) to express it in a general way that applies to all right triangles. That is why the theorem is named after him.

Lesson 2.3A
Warm-up

Review what you learned in Section 1 about the area of squares to get ready for this lesson.

1. What is the area of this square?

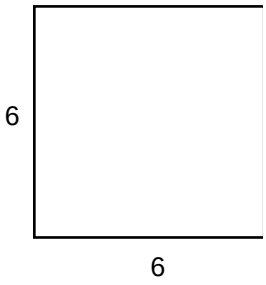


   a. 3

   b. 6

   c. 3^2

2. What is the area of this square?



   a. 6^2

   b. 24

   c. 12

3. One side of a square is 5 cm long. What is its area?

4. We don't know very much about this square. The letter *c* represents the length of one side.

Which expression represents the area of this square?

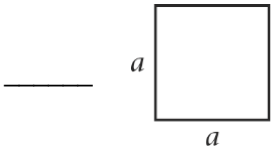
a. $2c$

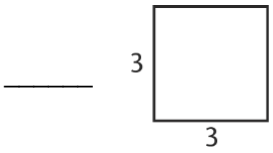
b. c^2

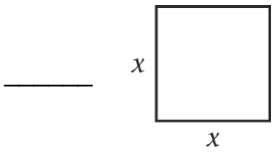
c. $4c$

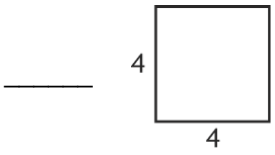
d. There isn't enough information to answer question.

5. Match each square to its area.









a. x^2

b. a^2

c. 4^2

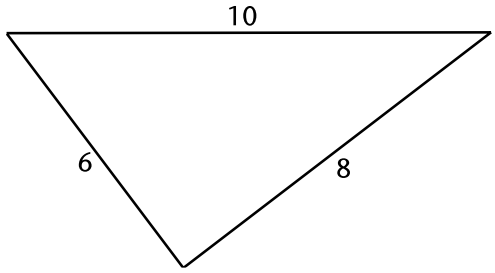
d. 9

Lesson 2.3B Try It!
Activity 1

Drawings can be deceiving! When there are no right angle markings, triangles may not always look like right triangles.

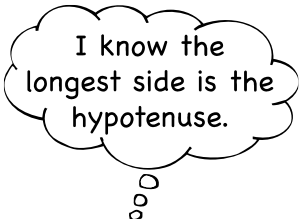
Use the Pythagorean Theorem to decide if these are right triangles or not.

1.



Use the Pythagorean Theorem to check. $a^2 + b^2 = c^2$

Fill in the lengths.
Put a ? over the equals sign.



$\_\_\_\_^2 + \_\_\_\_^2 \stackrel{?}{=} \_\_\_\_^2$

Figure out the square of each number. $\_\_\_\_^2 + \_\_\_\_^2 \stackrel{?}{=} \_\_\_\_^2$

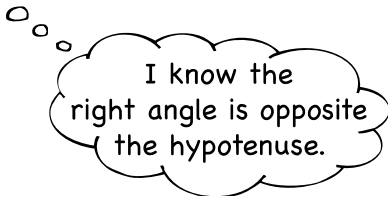
Is that true?

If it's not true, cross out the equals sign. $\_\_\_\_ = \_\_\_\_$

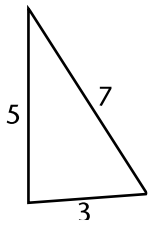
Is this triangle a right triangle or not?

If this is a right triangle, which angle is a right angle?

Mark the right angle.



2.



Use the Pythagorean Theorem to check.

Fill in the lengths.
Put a ? over the equals sign. $\_\_\_\_^2 + \_\_\_\_^2 \stackrel{?}{=} \_\_\_\_^2$

Figure out the square of each number. $\_\_\_\_^2 + \_\_\_\_^2 \stackrel{?}{=} \_\_\_\_^2$

Is that true?

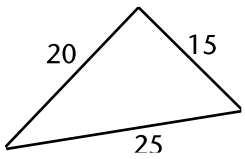
If it's not true, cross out the equals sign. $\_\_\_\_ = \_\_\_\_$

Is this triangle a right triangle or not?

If this is a right triangle, which angle is a right angle?

Mark the right angle.

3.



Use the Pythagorean Theorem to check.

Is this triangle a right triangle or not?

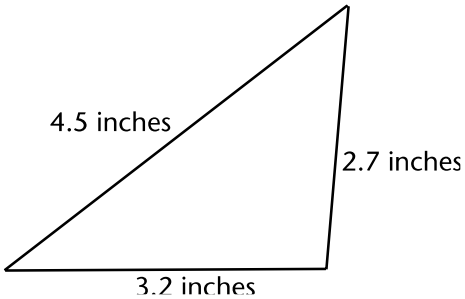
If this is a right triangle, which angle is a right angle?

Mark the right angle.

4. Draw a picture of a triangle with sides 13, 5, and 12 cm long. Is this a right triangle? Use the Pythagorean Theorem to check.

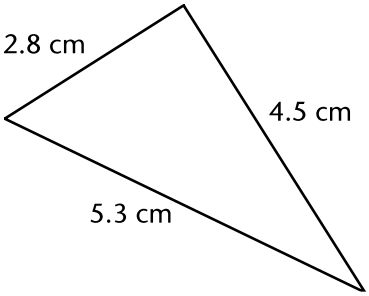
5. Draw a picture of a triangle with sides 11, 14, and 6 cm long. Is this a right triangle? Use the Pythagorean Theorem to check.

6. a. Is this triangle a right triangle? Use the Pythagorean Theorem to check.



b. Does this triangle have a hypotenuse? If not, why not? If so, how long is it?

7. a. Is this triangle a right triangle? Use the Pythagorean Theorem to check.

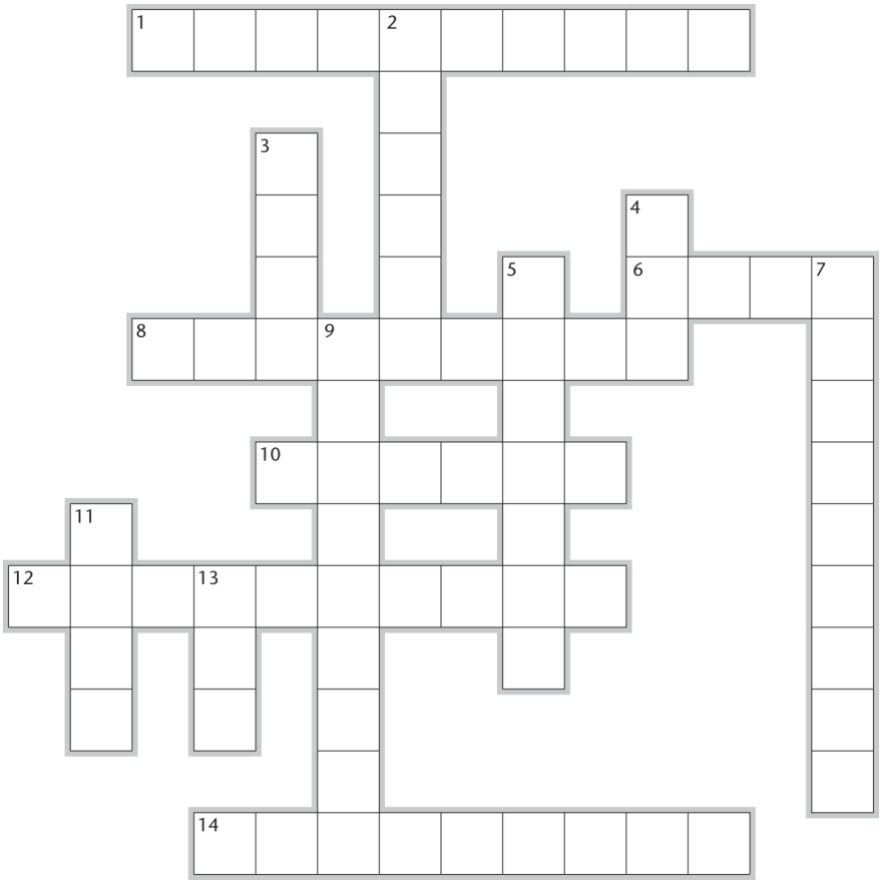


b. Does this triangle have a hypotenuse? If not, why not? If so, how long is it?

Lesson 2.3B
Warm-up

3. Solve the clues in the crossword puzzle. Write out the answers in words.

   There are no spaces or dashes in crossword puzzle answers. If your answer is 41, write "FORTYONE" in the puzzle.



Across

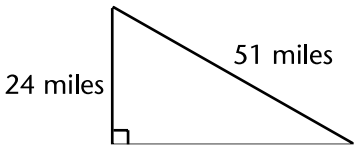
1. 5^2
6. 3^2
8. 7^2
10. $9^2 + 3^2$
12. $8^2 - 1^2$
14. $8^2 + 1$

Down

2. $6^2 - 4^2$
3. 2^2
4. 1^2
5. 4^2
7. 9^2
9. 6^2
11. $3^2 - 2^2$
13. $3^2 + 1^2$

Lesson 2.3C Try It!
Activity 3

1. Find the length of the other leg.



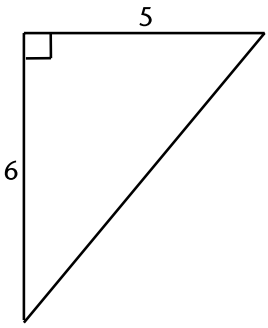
2. A right triangle has a hypotenuse that is 15 cm long. One of its legs is 7 cm long.

   Draw a picture of this triangle. Figure out the missing measurement.

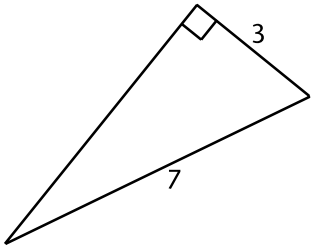
   Round your answer to the nearest tenth of a centimetre.

3. Find the length of the missing side for each of these triangles. All measurements are in centimeters. Round your answers to the nearest tenth.

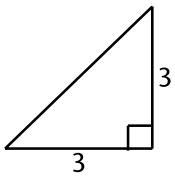
a.



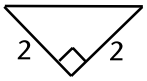
b.



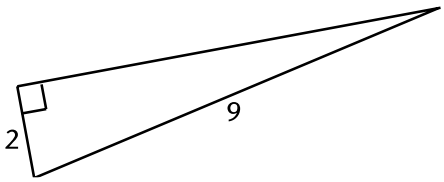
c.



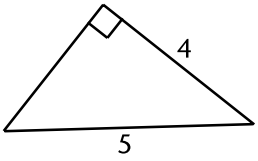
d.



e.

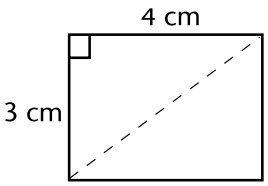


f.

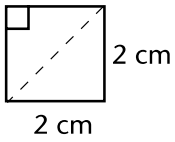


4. Find the length of each diagonal. Round your answers to the nearest hundredth.

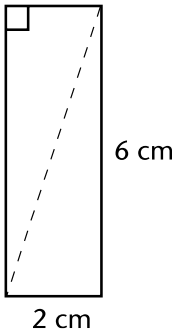
a.



b.



c.



Lesson 2.3C
Warm-up

Use your calculator to answer these questions.

1. Round your answers to the nearest hundredth.

   a. 4.7^2 = _____

   b. 294^2 = _____

   c. $\sqrt{49.6}$ = _____

   d. $\sqrt{0.25}$ = _____

   e. 15.3^2 = _____

   f. $\sqrt{885}$ = _____

2. Do not use your calculator. Use your answers from question 1 to answer these questions.

   7.042 = _____

   $\sqrt{22.09}$ = _____

   $\sqrt{86\ 436}$ = _____

   $\sqrt{234.09}$ = _____

   29.75^2 = _____

   0.5^2 = _____

3. Do you remember how to find the value of a variable?

   $j + 3 = 7$

   Subtract 3 from each side.

   $j + 3 - 3 = 7 - 3$
   $j = 4$

   Sometimes you might know the answer without doing the algebra steps. That's great! Show your work anyway. It's important to learn how to work logically. Then you'll know exactly what to do when the questions get more difficult.

Do these questions without your calculator. Show all the steps.

$x + 2 = 5$

b. $23 + v = 86$

$g + 153 = 2655$

d. $14 + m = 39$

$8 + t = 549$

f. $d + 350 = 522$

4. I'm thinking of a number. If I square my number, the answer is 16. What number am I thinking of?

Section Assignment 2.3
The Pythagorean Theorem

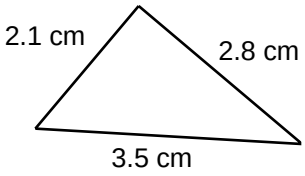
1. Draw a right triangle. Label the legs of the triangle a and b. Label the hypotenuse of the triangle c. (3 marks)

   State the Pythagorean Theorem. (1 mark)

2. What is a Pythagorean Triple? Your answer should include three points for full marks. (3 marks)

3. Is 2, 3, 4 a Pythagorean Triple? Why or why not? Prove your answer using the Pythagorean Theorem. (3 marks)

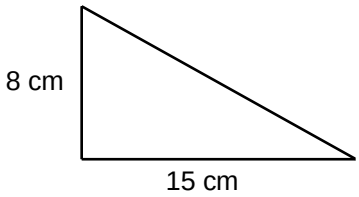
4.



a. Is this a right triangle? Why or why not? (3 marks)

b. Do the numbers 2.1, 2.8, and 3.5 form a Pythagorean Triple? Why or why not? (2 marks)

5.



How long is the hypotenuse of this triangle? (3 marks)

6. A boat travels 175 m to the west, then turns and travels 230 m to the south. How far is the boat from the place that it started? (4 marks)

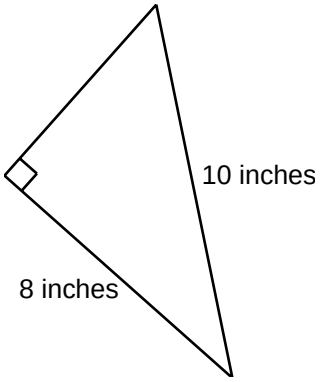
   To solve this, start by drawing a picture of the boat's path. (1 mark)

7. A right triangle has a hypotenuse that is 3.9 cm long. One of the legs is 1.2 cm long.

   Draw a picture of this triangle. Write the lengths that you know on the drawing. (1 mark)

   Solve for the length of the other leg. (3 marks)

8.



Find the length of the other leg. (3 marks)

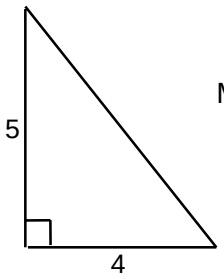
9. For each of these right triangles:

   - State whether the missing side is a leg or the hypotenuse.
   - Calculate the missing measurement for each right triangle.

   Show all your work.

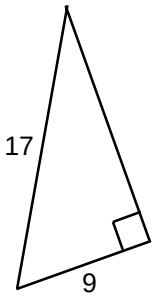
   If your answer is an irrational number, round to the nearest tenth. (20 marks—4 marks each)

a.



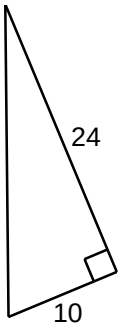
Missing side _____

b.

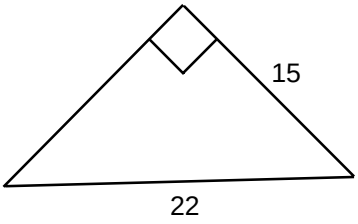


Missing side _____

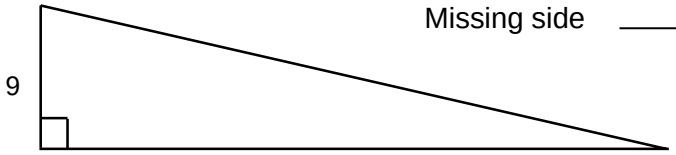
c.



Missing side _____

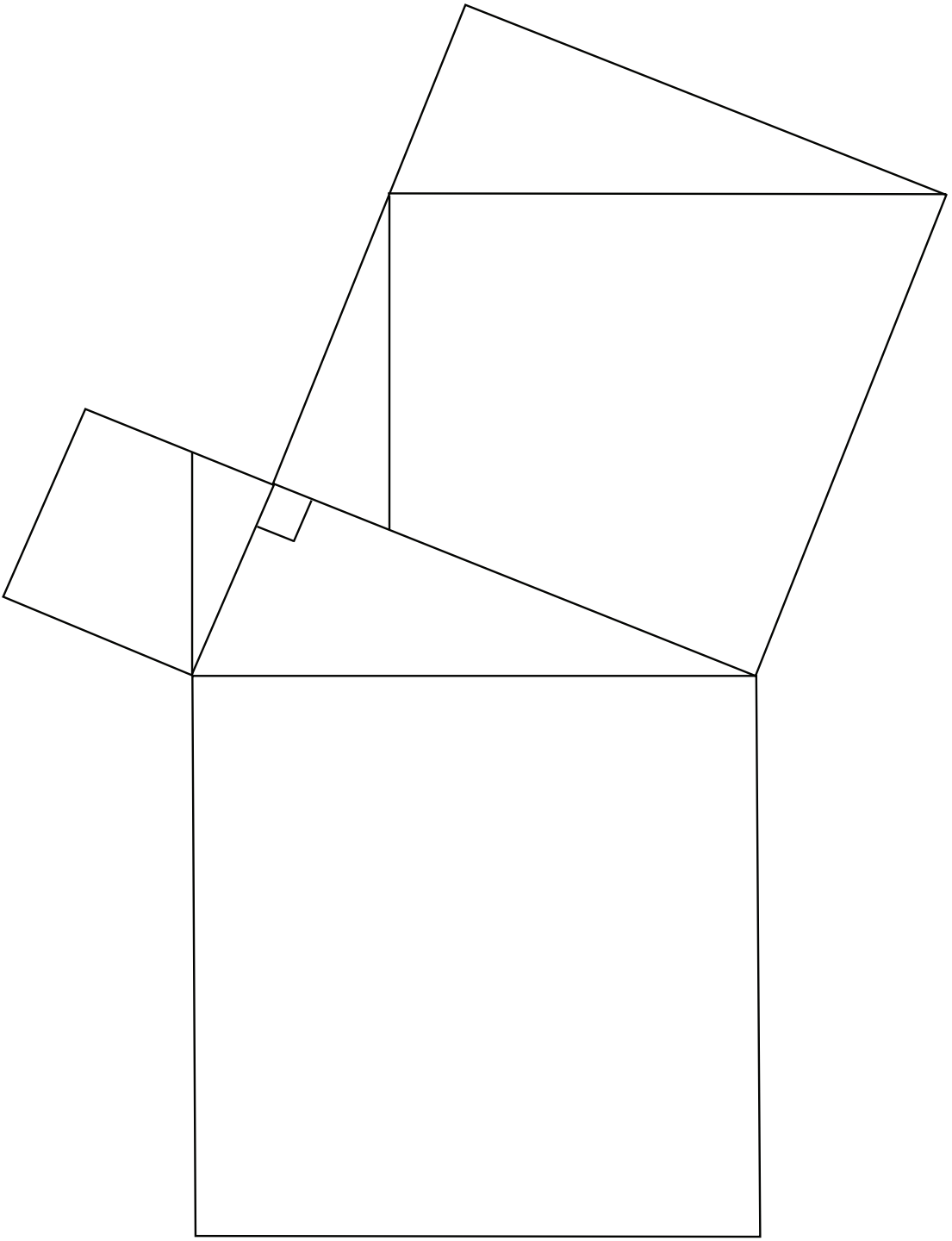
d. 

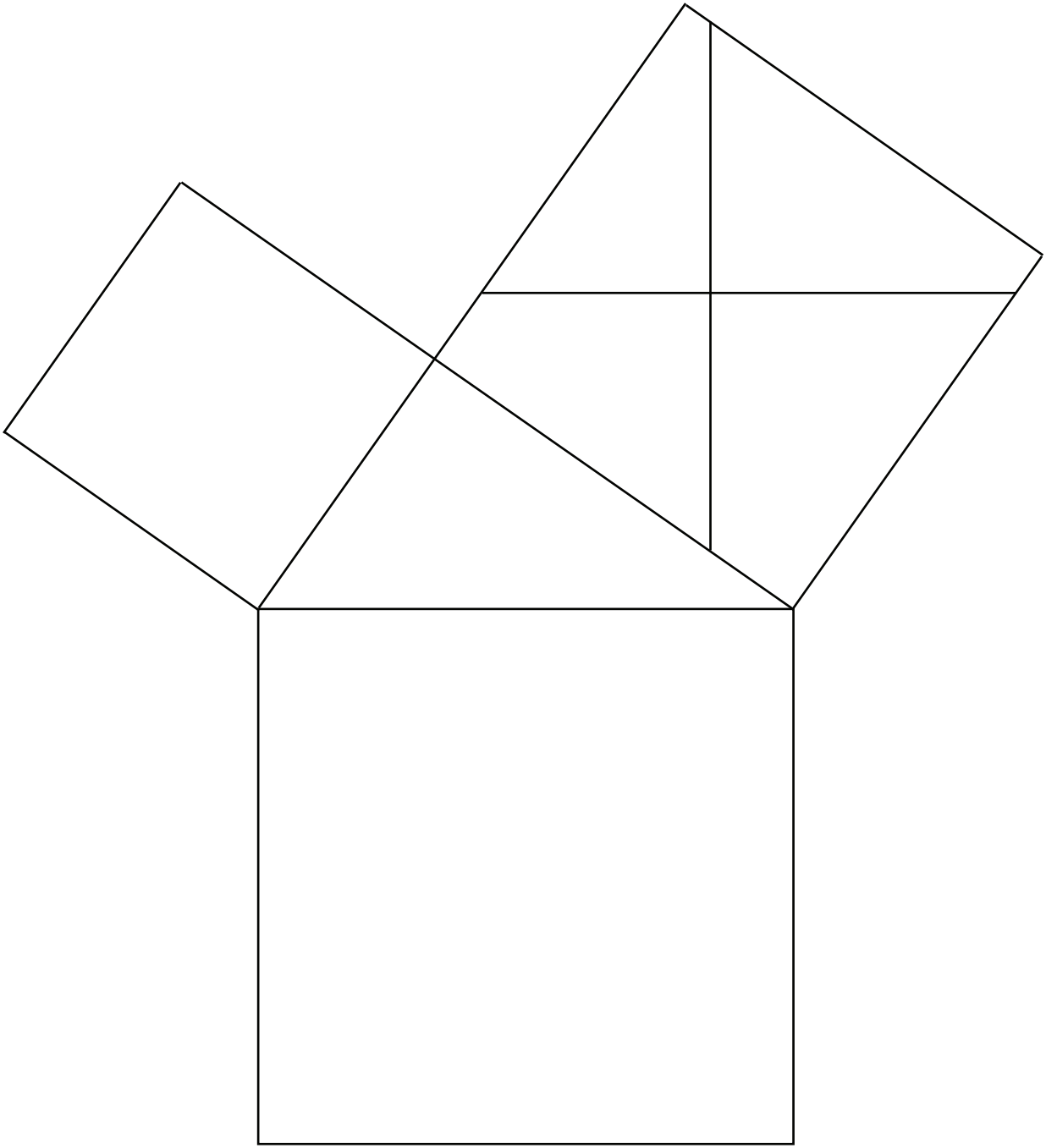
Missing side _____

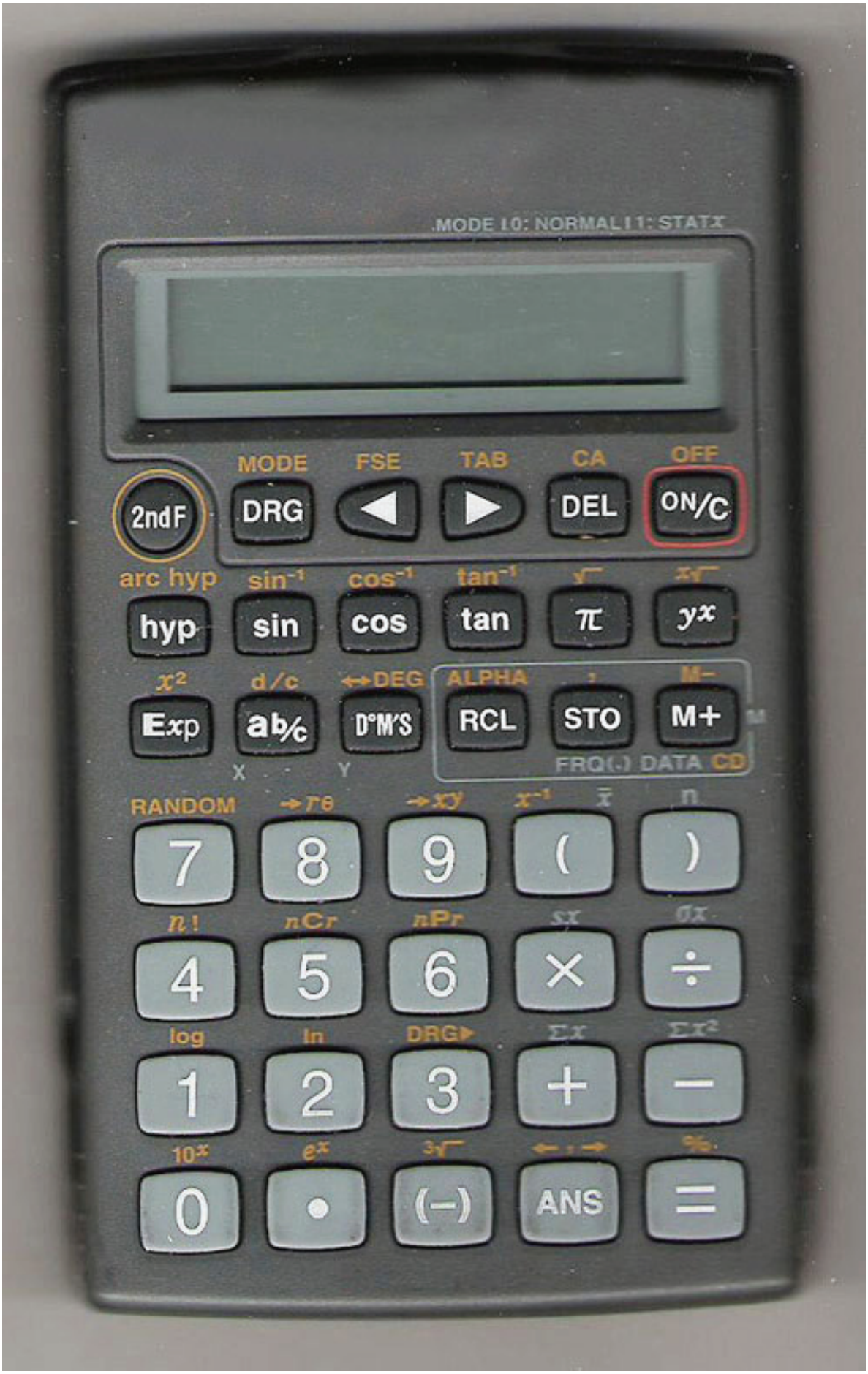
e. 

Missing side _____

Evaluation Guidelines	Marks
Right Triangles and the Pythagorean Theorem	/50
Total Marks	/50






MODE 10: NORMAL 11: STAT
MODE
FSE
TAB
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arc hyp
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cos⁻¹
tan⁻¹
hyp
sin
cos
tan
π
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M−
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ab/c
D°M'S
RCL
STO
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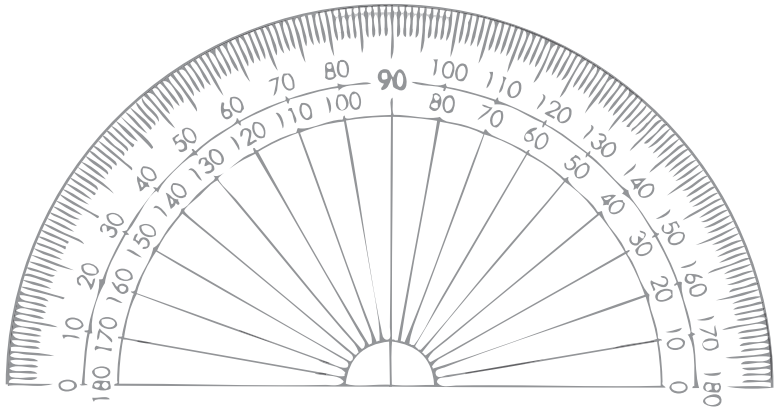
0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150 160 170 180
180 170 160 150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0