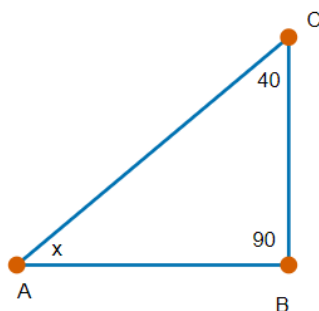


Warmup

1. $\angle B$ is a right angle.

$\angle C = 40^\circ$.

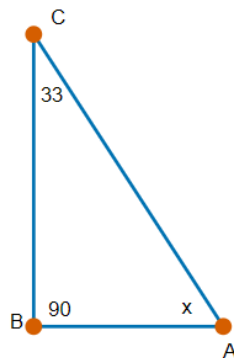
Find the measure of $\angle A$,
then classify the triangle by
its angles.



2. $\angle B$ is a right angle.

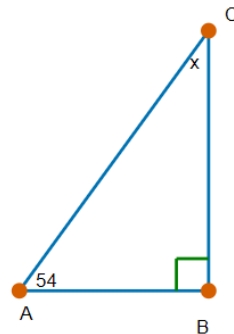
$\angle C = 33^\circ$

Find the measure of $\angle A$



3. $\angle ABC$ is a right angle.

Find the measure of $\angle ACB$
given that $\angle CAB = 54^\circ$



I. Parts of a Right Triangle

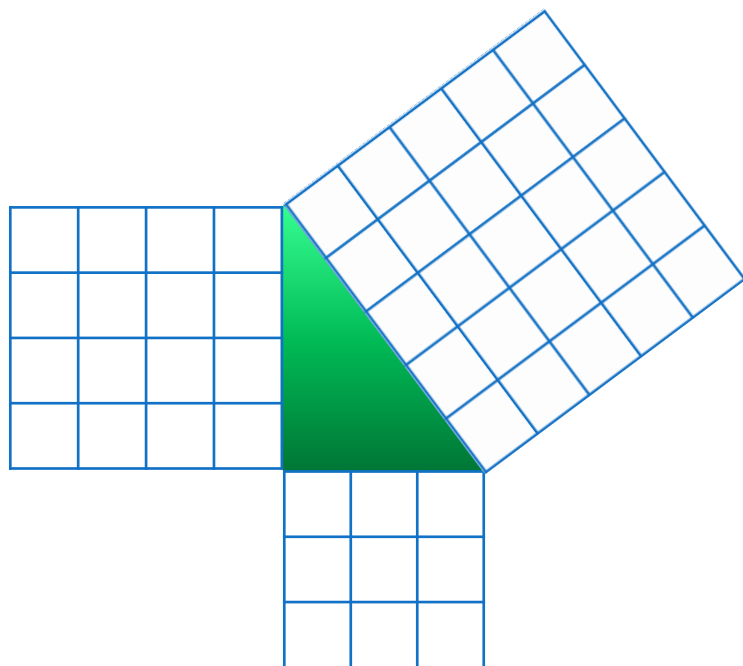
What do we know about the angles of a right triangle?



legs:

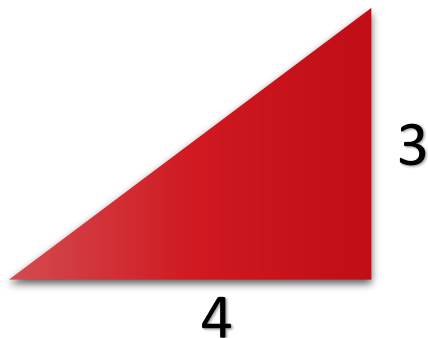
hypotenuse:

II. A Special Relationship

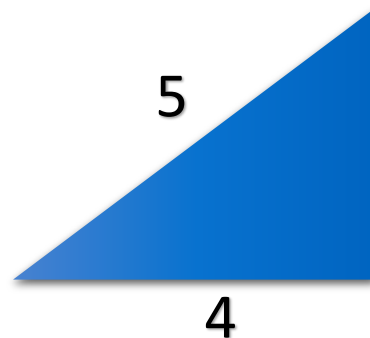


Pythagorean Theorem:

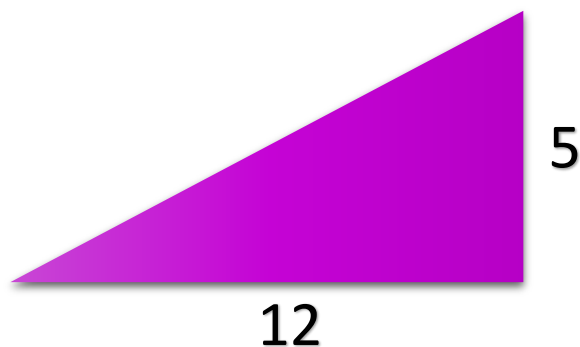
Determine the length of the missing side of the triangle



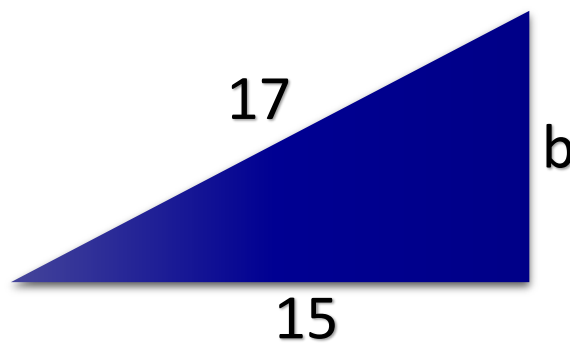
Determine the length of the missing side of the triangle



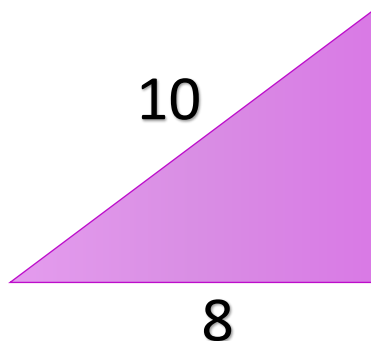
Determine the length of the missing side of the triangle



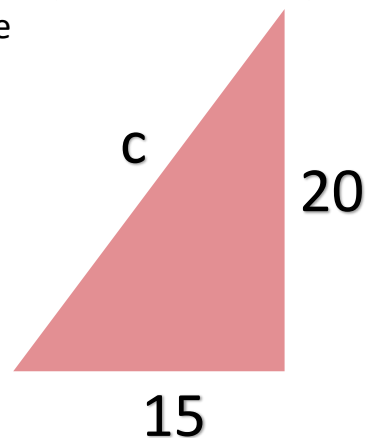
5. Determine the length of the missing side of the triangle



6. Determine the length of the missing side of the triangle



7. Determine the length of the missing side of the triangle

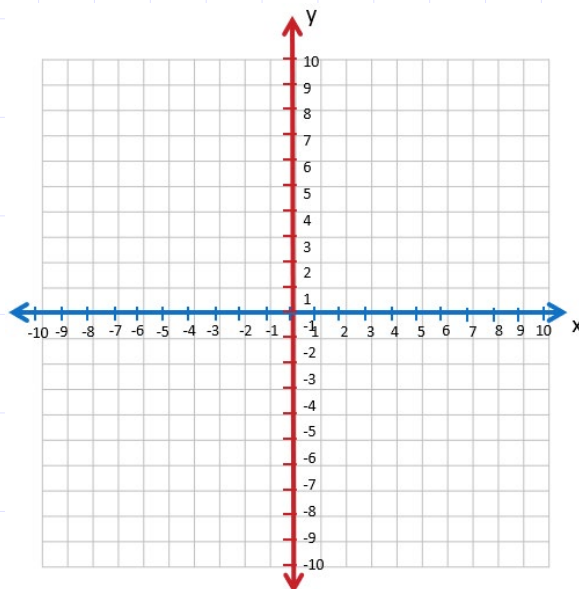


III. Practice

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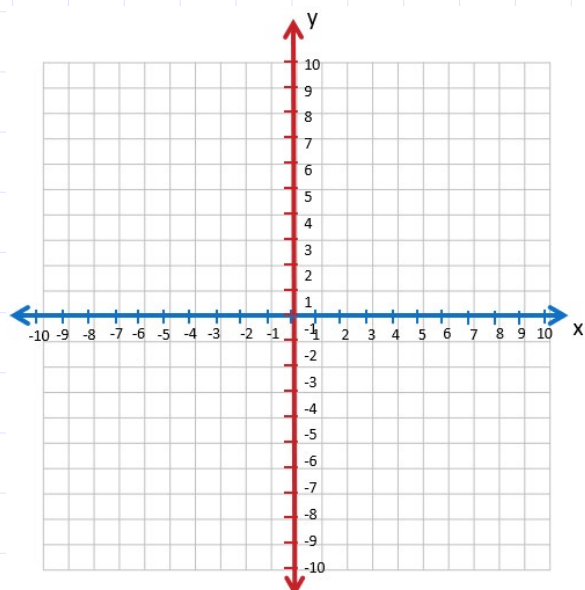
17

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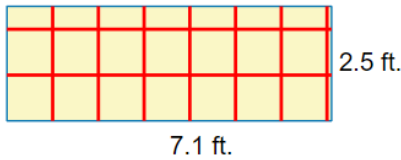
Success Check # _____

Name:

Date:

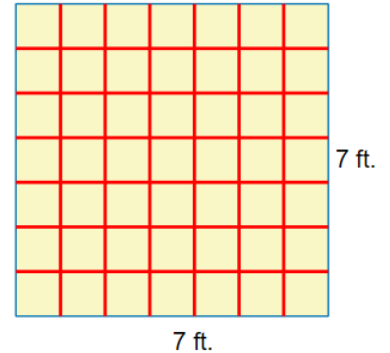
Warmup

1. Calculate the area of the rectangle.



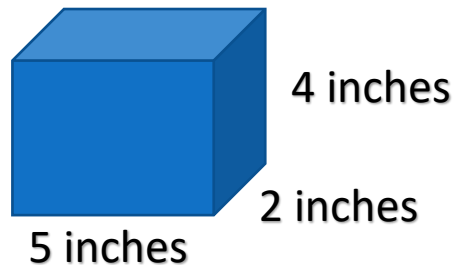
2. Multiply: $(\frac{3}{4})(3\frac{4}{10})$

3. Calculate the area of the square.



I. Volume

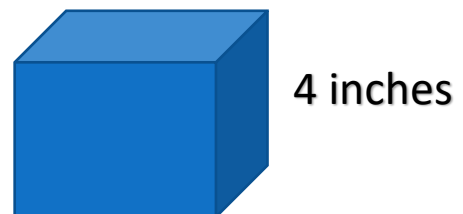
Volume: The number of cubic units inside a 3-dimensional shape



1. Calculate the area of the base



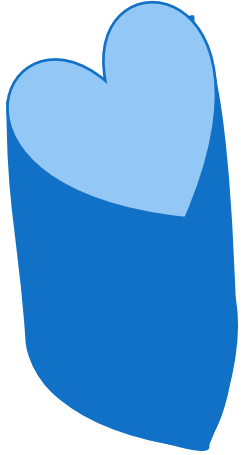
2. Multiply the area of the base by the height



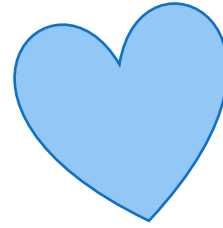
Volume = length x width x height

cubic units

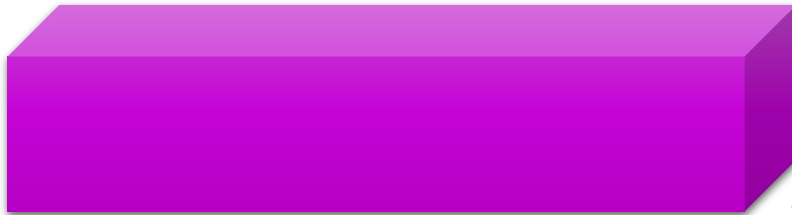
Calculate the volume of the heart-shaped box given that the area of the base (heart) is 25 square inches. The height of the box is 8 inches.



8 inches



Calculate the volume of the purple rectangular prism.

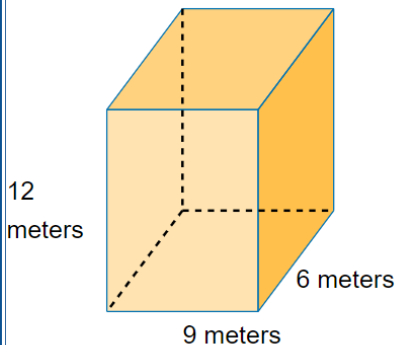


8 yards

3 yards

82 yards

Calculate the volume

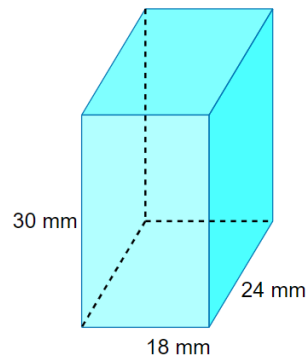


12
meters

6 meters

9 meters

4. Volume = _____



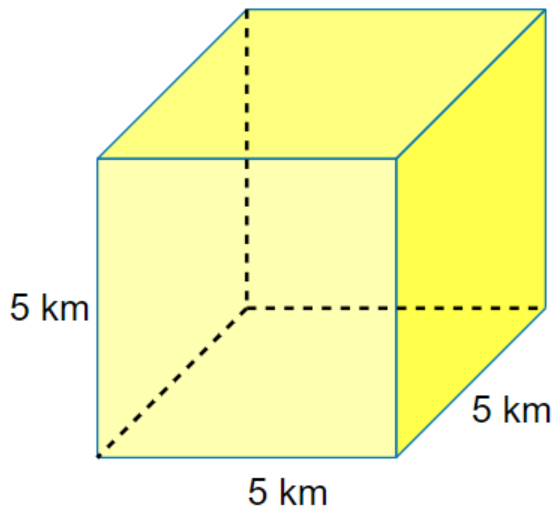
30 mm

24 mm

18 mm

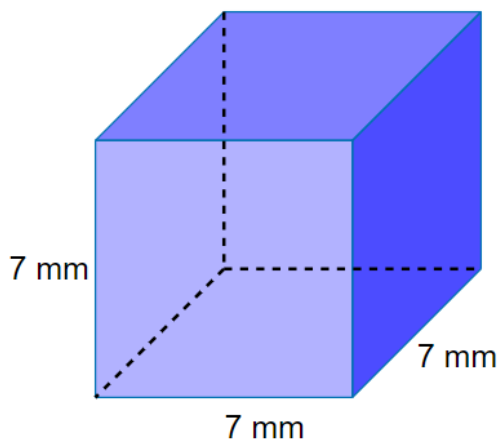
5.

II. Volume of a Cube

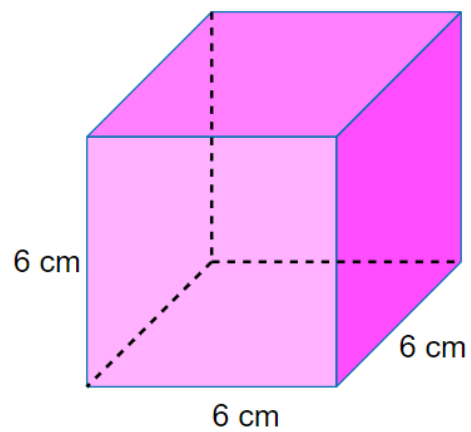


Volume of a cube:

Calculate the volume



6. Volume = _____



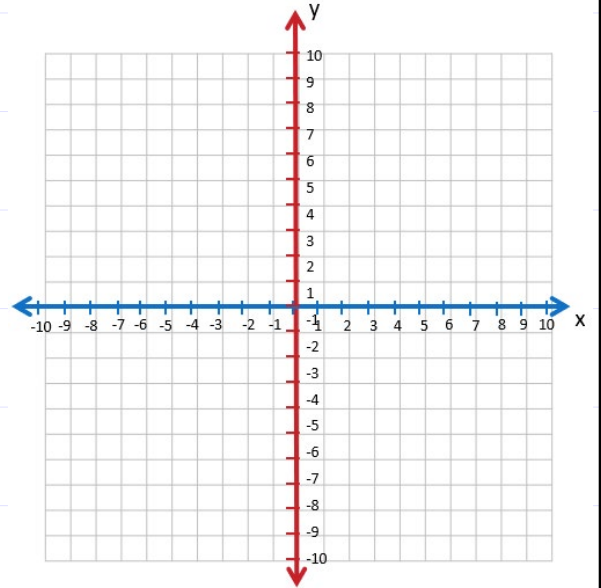
7.

III. Practice

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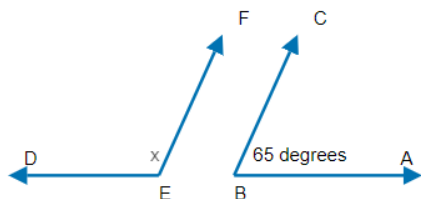
20

Success Check # _____

Name:

Date:

Warmup

1. Calculate value of $\angle FED$.

2. Calculate:

$$-2s - 5s = \underline{\hspace{2cm}}$$

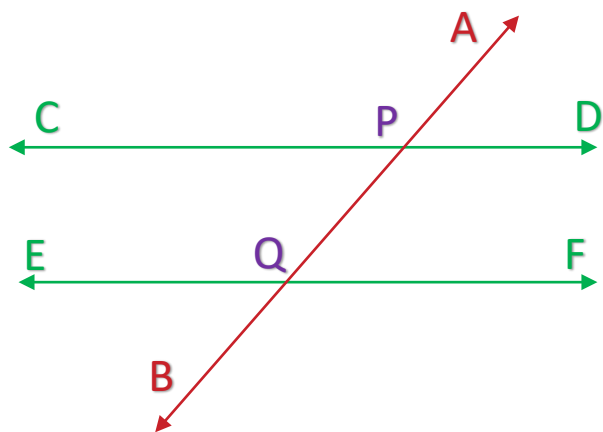
$$4s - -1s = \underline{\hspace{2cm}}$$

3. Calculate the value of x:

$$-4x + 212 = 180$$

I. Transversals

Transversal: A line that intersects parallel lines

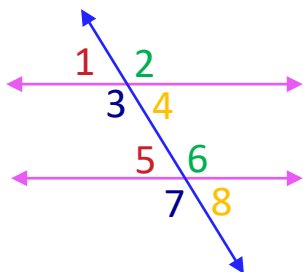


Line AB is the transversal

Line CD is parallel to Line EF

Point P and Point Q are points where the transversal intersects the parallel lines

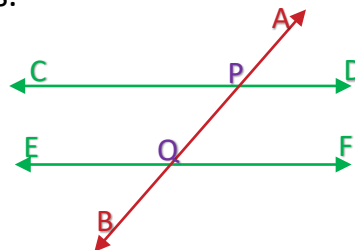
Corresponding Angles: Angles on the same side of the transversal and the corresponding side of the parallel line.

Corresponding Angles are congruent.

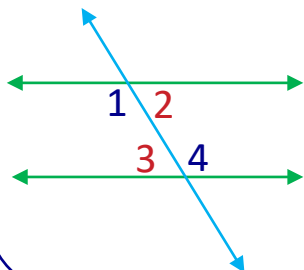
The corresponding angles are:

 $\angle 1$ and $\angle 5$ $\angle 2$ and $\angle 6$ $\angle 3$ and $\angle 7$ $\angle 4$ and $\angle 8$

List all the corresponding angle pairs.



Alternate Interior Angles: Angles on the opposite side of the transversal and between the parallel lines.

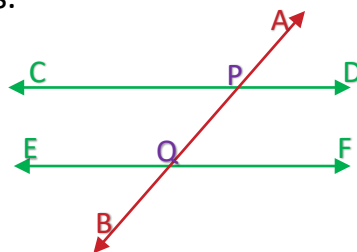


The alternate interior angles are:

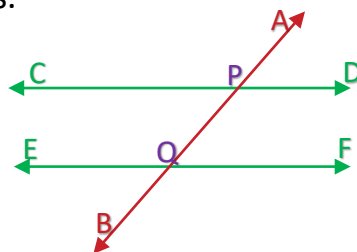
$\angle 1$ and $\angle 4$

$\angle 2$ and $\angle 3$

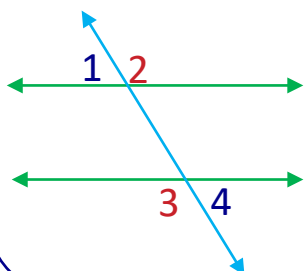
List all the alternate interior angle pairs.



List all the alternate exterior angle pairs.



Alternate Exterior Angles: Angles on the opposite side of the transversal and on the outside of the parallel lines.



The alternate interior angles are:

$\angle 1$ and $\angle 4$

$\angle 2$ and $\angle 3$

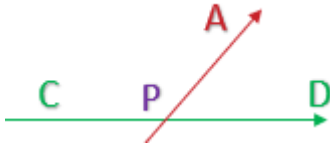
5.

6.

7.

II. Angle Measures for Parallel Lines and a Transversal

Angles are called supplementary when their _____ equals _____ degrees.

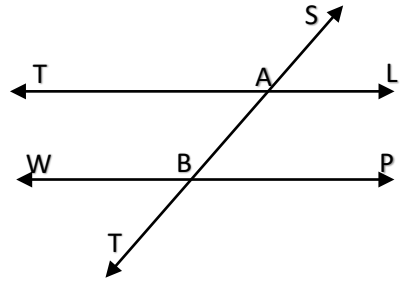


$\angle CPA$ and $\angle APD$ are supplementary angles.

$$\angle CPA = 105^\circ$$

$$\angle APD = \underline{\hspace{2cm}}^\circ$$

Use the angle relationships of a transversal to calculate the measure of each angle.



$$\angle SAT = 135^\circ$$

$$\angle SAL = \underline{\hspace{2cm}}^\circ$$

$$\angle TAB = \underline{\hspace{2cm}}^\circ$$

$$\angle ABW = \underline{\hspace{2cm}}^\circ$$

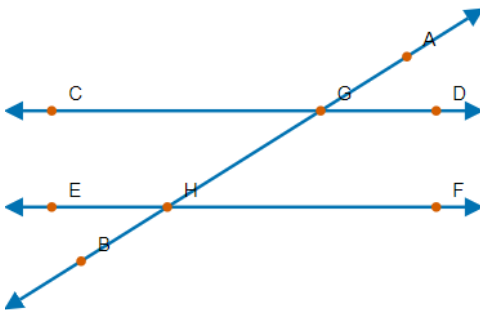
$$\angle SAT = \underline{\hspace{2cm}}^\circ$$

$$\angle LAB = \underline{\hspace{2cm}}^\circ$$

$$\angle PBT = \underline{\hspace{2cm}}^\circ$$

$$\angle PBA = \underline{\hspace{2cm}}^\circ$$

8. $CD \parallel EF$. Line GF intersects the parallel lines. $\angle AGC = 148^\circ$



$$\angle AGD = \underline{\hspace{2cm}}$$

$$\angle CGH = \underline{\hspace{2cm}}$$

$$\angle DGH = \underline{\hspace{2cm}}$$

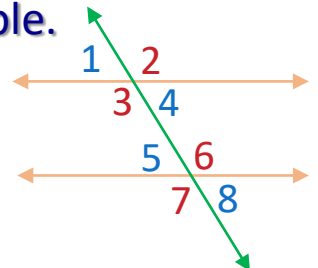
9.

III. Using the Transversal to Calculate the Value of a Variable.

To calculate angle measures given algebraic expressions:

1. Determine the relationship of the angles
2. Combine like-terms
3. Solve the 2-step equation for x
4. Check the answer

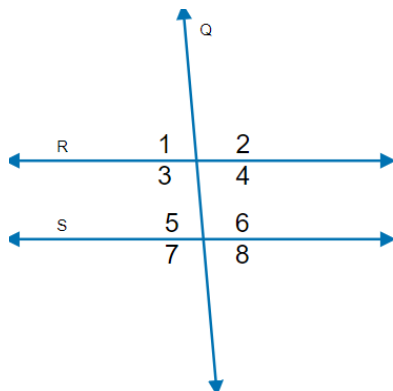
$$\angle 7 = 5x + 75 \text{ and } \angle 8 = -2x + 180 \text{ Find the value of } x$$



10. Line R || Line S.

$$\angle 3 = 15x + 55$$

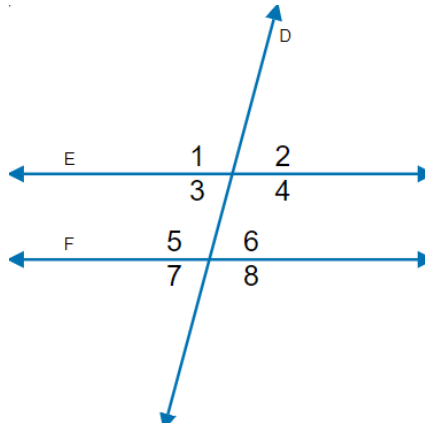
$$\angle 5 = 12x + 71$$



11. Line E || Line F.

$$\angle 6 = -4x + 169$$

$$\angle 8 = -7x + 187$$

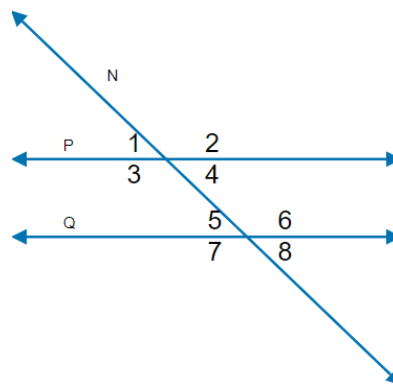


IV. Calculating Angle Measures using Algebraic Expressions

$$\angle 6 = 5x + 61 \text{ and } \angle 8 = -3x + 199$$

The value of $x =$ _____

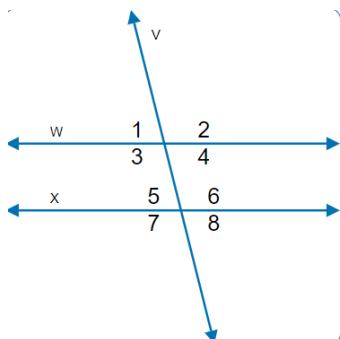
$$\angle 5 =$$



$$\angle 3 = -5x + 86 \text{ and } \angle 8 = 2x + 100$$

The value of $x =$ _____

$$\angle 2 =$$



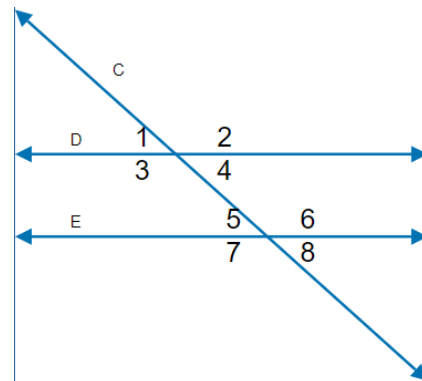
12. Line D || Line E.

$$\angle 6 = 5x - 28$$

$$\angle 8 = 8x + 26$$

The value of $x =$ _____

$$\angle 5 =$$

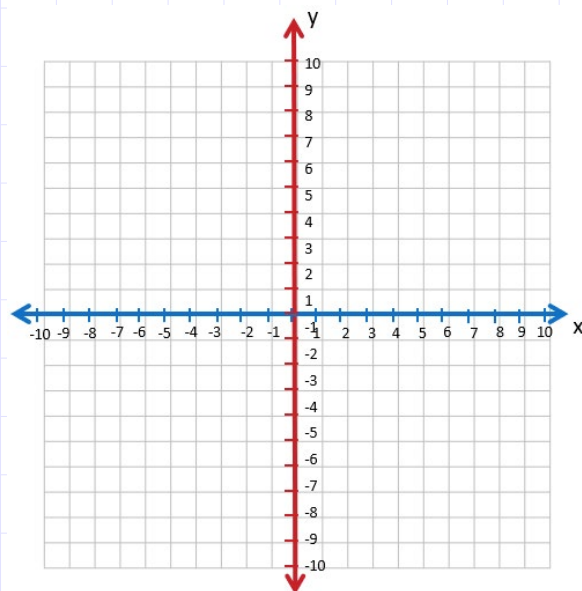


V. Practice

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Success Check # _____

Name:

Date:

Warmup

1. $-2x + 10 = 4$

$x = \underline{\hspace{2cm}}$

2. Calculate:

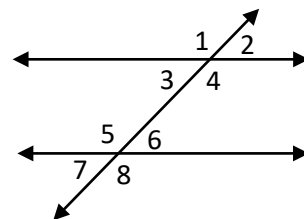
$-6P - -10P = \underline{\hspace{2cm}}$

$3P - 3P = \underline{\hspace{2cm}}$

3. Calculate the value of $\angle 3$:

$\angle 3 = 15x + -82$

$\angle 4 = 7x + 108$



I. Variables on Each Side of an Equation

$5x + 9 = 4x$

When variable terms are on both sides of the equation, move all the variable terms to the same side.

Solve and Check:

$-4x = -63 + 3x$

Solve and Check:

$-5x = 10 + -4x$

Solve and Check:

$-3x + -10 = 4x$

Solve and Check:

$-4x + -40 = -9x$

4. Solve and Check:

$$4x = -9 + 7x$$

5. Solve and Check:

$$6x - 80 = -4x$$

II. Variables and Numbers on Each Side of an Equation

$$5x + 9 = 15 + 4x$$

Solve and Check:

$$-5x + 13 = -27 + 3x$$

Solve and Check:

$$-4x + 14 = -2x + 4$$

6. Solve and Check:

$$7x + 12 = 84 - 5x$$

7. Solve and Check:

$$9x + 25 = 3x + 73$$

III. Multiple Variable Terms and Numbers on Each Side of an Equation

Solve and Check:

$$-5x + 2x + 14 = 4x + -28$$

Solve and Check:

$$-1x + 14 + 5x = -3x + 28$$

8. Solve and Check:

$$4x + 9x + 15 = 7x + 39$$

9. Solve and Check:

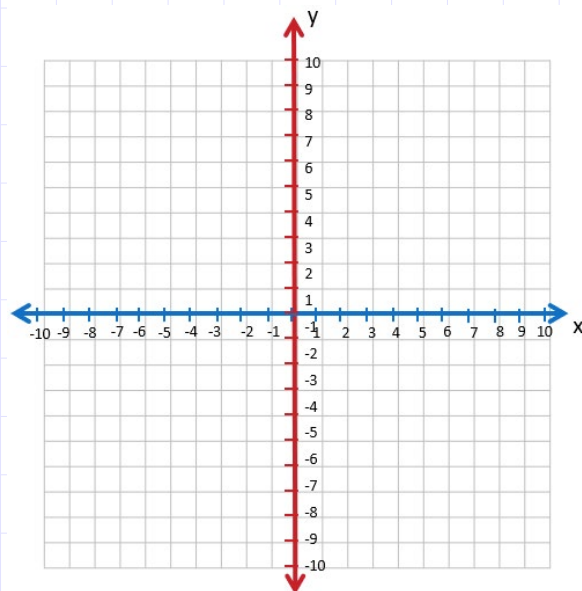
$$6x + 7 + 4x = 2x + -73$$

V. Practice

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Success Check # _____

Name:

Date:

Warmup

1. Simplify $\sqrt{25}$

3. Convert $\frac{4}{9}$ to a decimal number.

4. Convert $\frac{3}{11}$ to a decimal number.

2. Simplify $\sqrt{144}$

I. Estimating the Square Root Using a List of Squares

$\sqrt{4} = \underline{\hspace{2cm}}$ because $\underline{\hspace{2cm}}$

$\sqrt{9} = \underline{\hspace{2cm}}$ because $\underline{\hspace{2cm}}$

To find the square root of a number that is Not a perfect square, estimate the answer.

$\sqrt{70}$ is between $\underline{\hspace{2cm}}$ and $\underline{\hspace{2cm}}$

$\sqrt{70}$ estimated to the nearest tenth = $\underline{\hspace{2cm}}$

$8.1^2 = 65.61$ $8.4^2 = 70.56$

$8.2^2 = 67.24$ $8.5^2 = 72.25$

$8.3^2 = 68.89$ $8.6^2 = 73.96$

Estimate $\sqrt{37}$ to the nearest tenth

$6^2 = 36$

$6.1^2 = 37.21$

$6.2^2 = 38.44$

$6.3^2 = 39.69$

$6.4^2 = 40.96$

$6.5^2 = 42.25$

$6.6^2 = 43.56$

$6.7^2 = 44.89$

$6.8^2 = 46.24$

$6.9^2 = 47.61$

$7^2 = 49$

Estimate $\sqrt{133}$ to the nearest tenth

$11^2 = 121$

$11.1^2 = 123.21$

$11.2^2 = 125.44$

$11.3^2 = 127.69$

$11.4^2 = 129.96$

$11.5^2 = 132.25$

$11.6^2 = 134.56$

$11.7^2 = 136.89$

$11.8^2 = 139.24$

$11.9^2 = 141.61$

$12^2 = 144$

5. Estimate $\sqrt{22}$ to the nearest tenth

$4^2 = 16$

$4.1^2 = 16.81$

$4.2^2 = 17.64$

$4.3^2 = 18.49$

$4.4^2 = 19.36$

$4.5^2 = 20.25$

$4.6^2 = 21.16$

$4.7^2 = 22.09$

$4.8^2 = 23.04$

$4.9^2 = 24.01$

$5^2 = 25$

6. Estimate $\sqrt{101}$ to the nearest tenth

$10^2 = 100$

$10.1^2 = 102.01$

$10.2^2 = 104.04$

$10.3^2 = 106.09$

$10.4^2 = 108.16$

$10.5^2 = 110.25$

$10.6^2 = 112.36$

$10.7^2 = 114.49$

$10.8^2 = 116.64$

$10.9^2 = 118.81$

$11^2 = 121$

II. Estimating Square Root to the Nearest Tenth

Estimate the decimal equivalent of $\sqrt{32}$ to the nearest tenth.

Explore

What is the question asking?

Plan

What is the best method to get a valid solution?

Solve

Determine the nearest whole number squares.
Guess and Check to determine the number to the nearest tenth.

Check

Check by multiplying the answer.

Estimate the decimal equivalent of $\sqrt{176}$ to the nearest tenth.

7. Estimate the decimal equivalent of $\sqrt{228}$ to the nearest tenth.

III. Round Repeating Decimal Numbers

Write $450\frac{2}{3}$ as a repeating decimal, then estimate the value of to the nearest thousandth.

Round to the nearest tenth

34.763

23.936

Round $42.\overline{173}$ to 3 decimal places.

8. Round $216.\overline{19}$ to 4 decimal places.

9. Round $100.\overline{85}$ to 5 decimal places.

IV. Practice

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Warmup

1. Simplify: $(15)^2$

2. Simplify: $-16+t^2$ when $t=4$

3. $-4 + -6 =$ _____

$9 + -4 =$ _____

$-32 + -9 =$ _____

$-18 + 100 =$ _____

I. Simplifying Exponents with Signed Numbers

base^{exponent}

$(-9)^2$

$-(9)^2$

-9^2

6^2

$(-12)^2$

-14^2

$-(-13)^2$

$-(-11)^2$

-16^2

$-(-12)^2$

14^2

4. Simplify: $(-8)^2$

5. Simplify: -15^2

6. Simplify: $-(7)^2$

7.

II. Signed Numbers in Expressions with Exponents

base^{exponent}

$$4+(-9)^2$$

$$4-(9)^2$$

$$4-9^2$$

8. Simplify: $(-4)^2+16$

9. Simplify: $-20+12^2$

10. Simplify: $-(5)^2-20$

11.

III. Signed Numbers in Algebraic Expressions with Exponents

Simplify $(-a)^2-b$ when $a=4$ and $b=8$

Parentheses

Exponents

Multiplication or Division

Addition or Subtraction

12. Simplify t^2 when $t=-10$

13. Simplify: $-x^2+y$ when
 $x=-13$ and $y=-31$

14.

IV. Practice

15	16
17	18
19	20
21	22

23

24

25

26

27

28

29

30

Success Check # _____

Name:

Date:

Warmup

1. 1 cm = _____ mm

1 km = _____ m

1 yard = _____ feet

1 meter = _____ cm

1 mile = _____ feet

1 foot = _____ inches

2. A fraction equals 1 when the numerator _____ the denominator.

An example of a fraction that equals 1 is: —

3. $\frac{(2)(3)(5)}{(7)(5)(3)}$

4. $\frac{(2)(6)(9)}{(9)(11)(2)}$

I. Understanding Conversions

Us Customary Volume and Capacity Equivalent Measures



Us Customary Time Equivalent Measures



Us Customary Length Equivalent Measures



Us Customary to metric conversion



Unit Conversions

Metric Equivalent Measures

10 mm = 1 cm
100 cm = 1 m
1000 m = 1 km

Us Customary Volume and Capacity Equivalent Measures

8 ounces = 1 cup
2 cups = 1 pint
2 pints = 1 quart
4 quarts = 1 gallon

Us Customary Time Equivalent Measures

60 seconds = 1 minute
60 minutes = 1 hour
24 hours = 1 day
7 days = 1 week
52 weeks = 1 year
365 days = 1 year
366 days = 1 leap year
12 months = 1 year

Us Customary Length Equivalent Measures

12 inches = 1 foot
3 feet = 1 yard
5280 feet = 1 mile
1760 yards = 1 mile

Us Customary to metric conversion

2.54 cm = 1 inch

2 pints = _____ quarts
Therefore

$$\frac{2 \text{ pints}}{\text{quarts}} = \frac{\text{quarts}}{2 \text{ pints}} = 1$$

1 yard = _____ feet
Therefore

$$\frac{1 \text{ yard}}{\text{feet}} = \frac{\text{feet}}{1 \text{ yard}} = 1$$

Write two rates regarding minutes to hours.

5. Write two rates involving days and years.

6. Write two rates involving yards and miles.

7.

II. Multiplying by Unit Rates

How many days are in 4 weeks?

4 weeks = _____ days

7 days = 1 week

4 weeks $\left(\frac{7 \text{ days}}{1 \text{ week}}\right) = \text{_____} = \text{_____} \text{ days}$

Cross Cancel

$$\frac{2 \text{ hours}}{1} \cdot \frac{60 \text{ minutes}}{1 \text{ hour}}$$

Cross Cancel

$$\frac{6 \text{ quarts}}{1} \cdot \frac{1 \text{ gallon}}{4 \text{ quarts}}$$

8. Cross cancel the like-factors.

$$\frac{3 \text{ meters}}{1} \cdot \frac{1 \text{ km}}{1000 \text{ meters}} = \frac{3}{1000} \text{ km}$$

9. Cross cancel the like-factors.

$$\frac{5 \text{ miles}}{1} \cdot \frac{1760 \text{ yards}}{1 \text{ mile}} = \frac{(5)(1760)}{1} \text{ yards}$$

10. Determine the unit rate used to convert 4 inches to feet.

4 inches · _____ = _____ feet

11. Determine the unit rate used to convert 8 cups to ounces.

8 cups · _____ = _____ ounces

12.

III. Calculating the Unit Conversions

How many minutes are in 45 seconds?

45 seconds = _____ minutes

60 seconds = 1 minute

45 seconds $\left(\frac{1}{60}\right) = \text{_____} = \text{_____} \text{ minutes}$

Convert 12 ounces to cups.

(Round to 4 decimal places)

Convert 2 cm to mm.

(Round to 4 decimal places)

13. Convert 9 years to weeks.

(Round to 4 decimal places)

14. Convert: 25 cm = _____ inches

(Round to 4 decimal places)

15.

IV. Practice

16

17

18

19

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22

23

24

25

26

27

Success Check # _____

Name:

Date:

Name: _____

Attempt #: _____

1

2

3

4

5

6

7

8

9

10

11

12

13

14

15

16

17

18

Name:

Attempt #:

Test # ____ Answer Sheet

1

2

3

4

5

6

7

8

9

10

11

12

13

14

15

16

17

18

19

20

19

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