8th Grade SUMMER MATH PRACTICE — JUNE SET

Circle the best answer to each question. Math Help pages are at the back of the packet to use as needed.

1. **Solve**. $-19.876 + (-20.453)$ A. -40.329 C. 40.329 B. -0.577 D. 0.577	2. Solve. $11\frac{5}{8} + 3\frac{7}{9}$ A. 16 C. $8\frac{5}{72}$ B. $14\frac{11}{72}$ D. $15\frac{29}{72}$
3. Solve. $\frac{4}{22} \times 3\frac{2}{3}$ A. -40.329 C. $1\frac{3}{4}$ B. $\frac{2}{3}$ D. $\frac{44}{66}$	4. **Solve**. $-\frac{4}{5} \div \frac{20}{25}$ A. $-15\frac{29}{72}$ C. -1 B. -2 D. 1
5. Solve. $[(9-4)^2 + 4] + 15 \div 5$ A. -29 C. 3 B. 32 D. 8.9	6. Solve. $(-3)^2 + 4 \times 6$ A. 33 C. 15 B. 78 D. -4
7. Solve. $-\lvert -17 \times 3 \rvert$ A. -14 C. -51 B. 51 D. -5.6	8. **Solve**. $\lvert 15 - 24 \rvert$ A. -9 C. 39 B. 9 D. 585
9. **Solve**. $\frac{7}{16} = \frac{x}{42}$ A. -51 C. 2.67 B. 96 D. 18.375	10. **Solve**. Fourteen is what percent of 35? A. 40% C. 250% B. 0.40 D. 2.5

11. Allyssah collected some seashells in her beach bucket to remember her time at the beach. She picked up 8 pink shells, 9 white shells, 10 purple shells and 23 brown speckled shells. Allyssah went to show her cousin the shells. What is the probability that Allyssah's cousin reached in and picked out a purple shell?

A. $\frac{4}{25}$ C. $\frac{1}{5}$

B. $\frac{29}{72}$ D. $\frac{10}{49}$

12. Rosie picked pieces of Saltwater Taffy to bring home from the Boardwalk Candy Shop. She has 5 pieces of chocolate, 3 pieces of cotton candy, 6 vanilla, and 1 pineapple. What is the probability that Rosie will pick a chocolate and then vanilla to eat?

Probability (Chocolate, Vanilla) *without replacement.*

A. $\frac{1}{3}$ C. $\frac{6}{14}$

B. $\frac{1}{7}$ D. $\frac{30}{72}$

13. Solve.

$$0.5a - 1 = 1.5$$

A. $a = 1$ C. $a = 0.8$

B. $a = 5$ D. $a = -0.577$

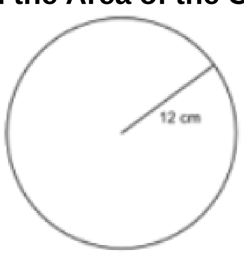
14. Solve.

$$5x - 11 - 2x = -17$$

A. $x = -2$ C. $x = 9.3$

B. $x = 2$ D. $x = 18$

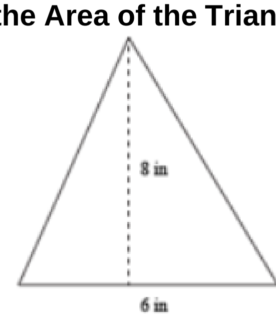
15. **Find the Area of the Circle.**



A. $452.16\ cm^2$ C. $75.36\ cm^2$

B. $113.04\ cm^2$ D. $3.14\ cm^2$

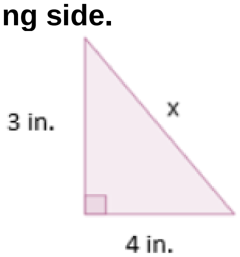
16. **Find the Area of the Triangle.**



A. $48\ in^2$ C. $24\ in^2$

B. $7\ in^2$ D. $14\ in^2$

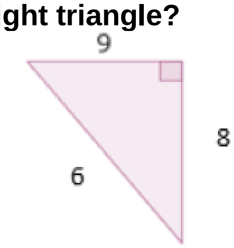
17. **Use the Pythagorean Theorem to solve for the missing side.**



A. $25\ in.$ C. $625\ in.$

B. $5\ in.$ D. $16\ in.$

18. **What number represents the hypotenuse of the right triangle?**



A. 9 C. 6

B. 8 D. *none of the above*

19. **Simplify.**

$\sqrt{25}$

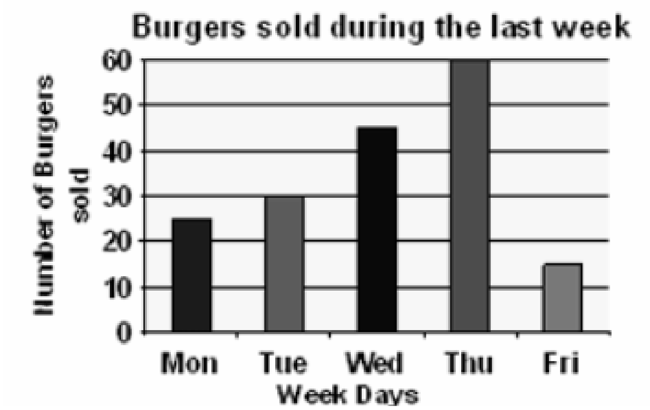
A. 50
B. 7
C. 625
D. 5

20. **Simplify.**

$\sqrt{100}$

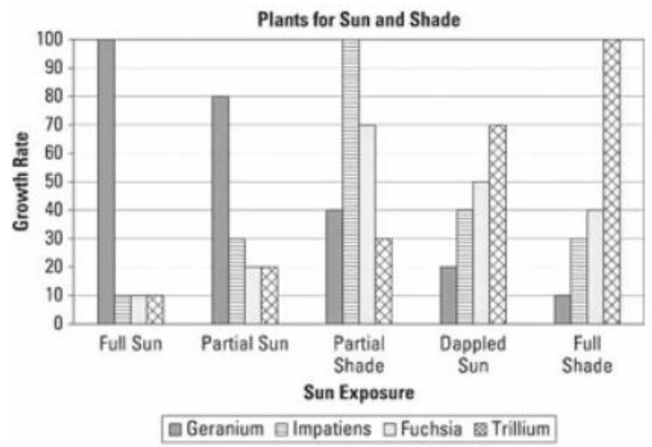
A. 5
B. 10
C. 1
D. 1,000

21. Mark just opened his new restaurant in Rome, Italy featuring American Burgers. What was the total number of burgers sold last week at Mark's restaurant?



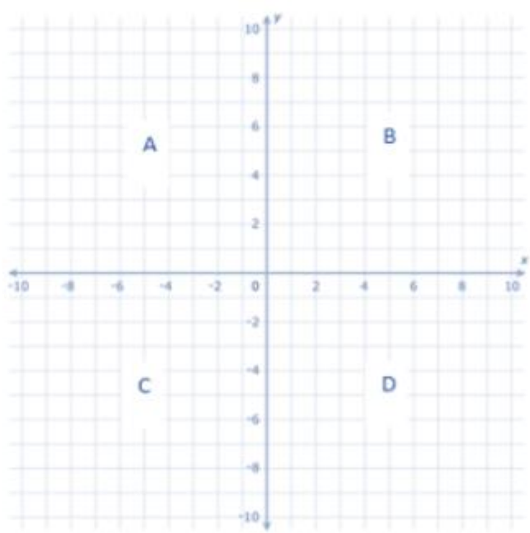
A. *165 burgers*
B. *157 burgers*
C. *175 burgers*
D. *160 burgers*

22. Farmers are trying to determine how much sun exposure certain flowers need in order to have the highest growth rate. Use the graph to predict what type of flower would grow best in Full Shade.



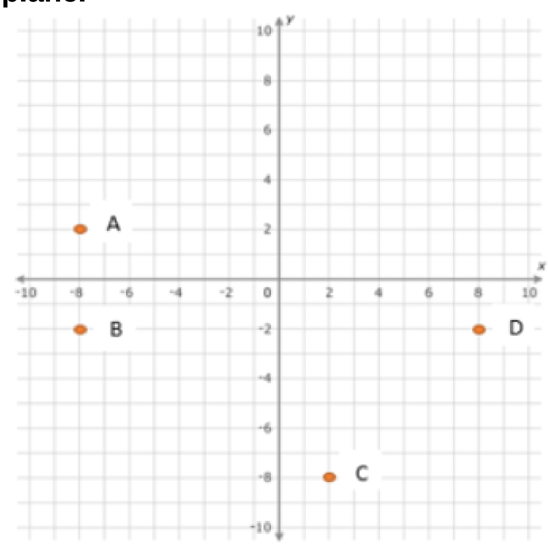
A. *Geranium*
B. *Impatiens*
C. *Fuchsia*
D. *Trillium*

23. **Which of the letters represents Quadrant II?**



A. *A*
B. *B*
C. *C*
D. *D*

24. **Graph the point (-8, 2) on the coordinate plane.**



A. *Point A*
B. *Point B*
C. *Point C*
D. *Point D*

25. **Simplify by combining like terms.** $4x + 9y + 3x - 12y$ A. $4xy$ C. $13xy - 9xy$ B. $7x - 3y$ D. $21y + 7x$	26. **Simplify by combining like terms.** $-12a + 15c - 14a - 6c$ A. $3ac - 20ac$ C. $-2a + 20c$ B. $21c - 26a$ D. $-26a + 9c$
27. **What is the GCF of 33 and 25?** A. 1 C. 825 B. 15 D. 275	28. **What is the LCM of 33 and 25?** A. 1 C. 825 B. 15 D. 275
29. **Is the sequence arithmetic, geometric or neither?** 52, 63, 74, 85, ... A. *arithmetic* C. *neither* B. *geometric*	30. **What are the next three terms in the sequence?** 52, 63, 74, 85, ... A. ...41, 30, 19 C. 935, 10,285, 113,135 B. ...96, 107, 118 D. 94, 103, 112

SUMMER MATH PRACTICE **JULY SET**

Circle the best answer to each question. Math Help pages are at the back of the packet to use as needed.

1. Solve. $30.362 - 67.1$ A. 97.462 C. 236.52 B. -36.738 D. -37.1	2. **Solve**. $7\frac{1}{5} - 4\frac{3}{4}$ A. $2\frac{9}{20}$ C. $10\frac{9}{20}$ B. $3\frac{11}{20}$ D. $11\frac{19}{20}$
3. **Solve**. $2\frac{4}{6} \times 4\frac{1}{2}$ A. $\frac{5}{72}$ C. 12 B. 1 D. $\frac{12}{16}$	4. **Solve**. $\dfrac{\frac{1}{5}}{\frac{16}{35}}$ A. $\frac{35}{80}$ C. $\frac{7}{16}$ B. 8 D. $\frac{16}{175}$
5. **Solve**. $[(8+2)^2 - 5] \div 5$ A. 3 C. 1 B. 19 D. 20	6. **Solve**. $(4)^2 + (4)(7)$ A. 44 C. 19 B. 140 D. 32
7. **Solve**. $\lvert -16 + 4 \rvert$ A. -12 C. 20 B. -20 D. 12	8. **Solve**. $\lvert 20 \rvert - \lvert 60 \rvert$ A. 30 C. -40 B. 80 D. -20
9. **Solve**. $\frac{13}{18} = \frac{x}{2}$ A. 26 C. 468 B. $2\frac{7}{16}$ D. $1\frac{4}{9}$	10. **Solve**. What is 42% of $120? A. 5,040 C. 69.6 B. 50.4 D. 285.7

11. Probability answers range from 0 to 1. What does it mean to you if the probability of an event occurring is equal to 0?

A. *it is impossible to occur*

B. *it is definitely going to occur*

C. *it is equally likely to occur as not to occur*

D. *it is more likely to happen than not*

12. ***A raffle would be different if a winner's name was placed back into the drawing container after they won. It would then be possible for them to win again! Find the probability of Chris winning the raffle twice given the information below:***

Margie has 6 raffle tickets, John has 8 raffle tickets, Mark has 3 raffle tickets, Sara has 15 raffle tickets and Chris has 18 raffle tickets.

Probability (Chris, Chris) with replacement.

A. $\frac{153}{1225}$ C. $\frac{81}{625}$

B. $\frac{9}{25}$ D. $\frac{6}{50}$

13. **Solve**.

$$3(x+2) = 25$$

A. $x = 6\frac{1}{3}$ C. $x = \frac{3}{19}$

B. $x = 11\frac{19}{20}$ D. $x = 11$

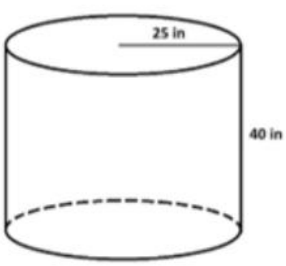
14. **Solve**.

$$24 = 2w + 12 - 14w$$

A. $w = -12$ C. $w = 36$

B. $w = -1$ D. $w = 2.25$

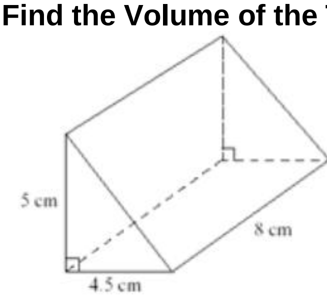
15. **Find the Volume of the Cylinder**



A. 1,962.5 in^3 C. 1,000 in^3

B. 6,280 in^3 D. 78,500 in^3

16. **Find the Volume of the Triangular Prism**



A. 22.5 cm^3 C. 90 cm^3

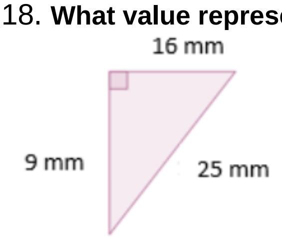
B. 40 cm^3 D. 36 cm^3

17. **Use the Pythagorean Theorem to determine which set of sides would form a right triangle.**

A. 8 $in.$, 4 $in.$ & 5 $in.$ C. 5 $in.$, 12 $in.$ & 13 $in.$

B. 7 $in.$, 8 $in.$ & 9 $in.$ D. 3 $in.$, 7 $in.$ & 8 $in.$

18. **What value represents a leg of this right triangle?**



A. 9 mm C. 25 mm

B. 41 mm D. 4 mm

19. **Simplify.**

$$\sqrt{144}$$

A. 14 C. 13

B. 12 D. 15

20. **Simplify.**

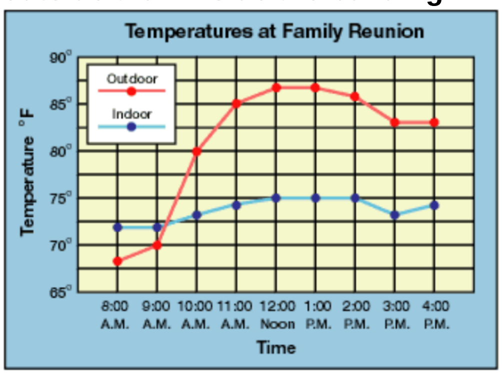
$$\sqrt{169}$$

A. 14 C. 13

B. 12 D. 15

21. Susan's family is getting together this summer for a family reunion! The adults think it would be better to host the reunion indoors so there would be air conditioning available for her grandparents and great aunts/uncles.

What time(s) would the temperature be cooler outside than inside the building?

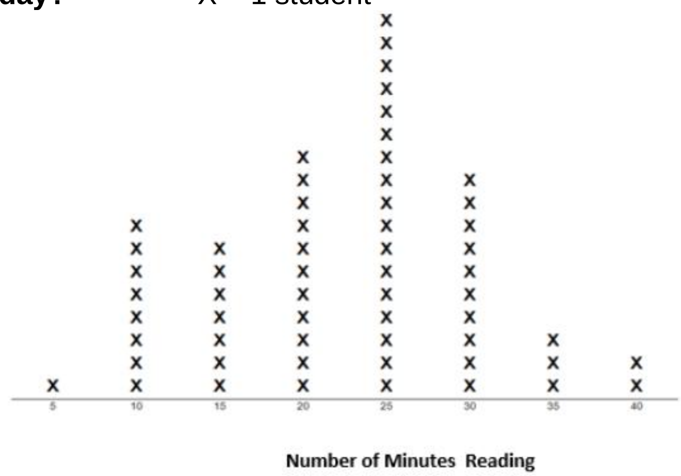


A. $8:00\ A.M\ only$ C. $8:00\ \&\ 9:00 A.M$

B. $10:00\ A.M.only$ D. *This never occurs.*

22. The line below represents the number of minutes students spent in summer reading each day.

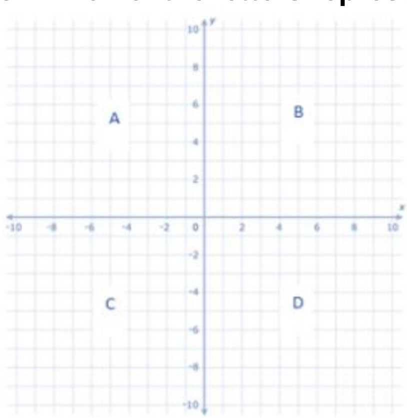
How many students read for 25 minutes each day? X = 1 student



A. 17 *students* C. 5 *students*

B. 15 *students* D. 32 *students*

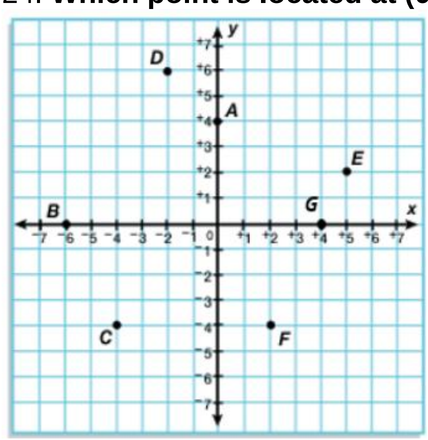
23. **Which of the letters represents Quadrant IV?**



A. A C. C

B. B D. D

24. **Which point is located at (0,4)?**



A. *Point A* C. *Point C*

B. *Point F* D. *Point G*

25. **Simplify by combining like terms.** $-12y + 3x + 12y - 6x$ A. $-3x + 24y$ C. $-9x + 24y$ B. 0 D. $-3x$	26. **Simplify by combining like terms.** $-2x + 5(x + 4)$ A. $-2x + 4$ C. $3x + 20$ B. $7x + 4$ D. 0
27. **What is the GCF of 120 and 312?** A. 8 C. 120 B. 24 D. 1,560	28. **What is the LCM of 120 and 312?** A. 8 C. 120 B. 24 D. 1,560
29. **Is this sequence arithmetic, geometric or neither?** 68, 34, 17, 8.5, …. A. *arithmetic* C. *neither* B. *geometric*	30. **What are the next three terms in the sequence?** 68, 34, 17, 8.5 …. A. 4.25, 2.125, 1.0625 C. 2.125, 1.0625, 0.53125 B. 4.25, 2.25, 0.25 D. 8.5, 4.25, 2.25

MATH HELP WALL– Examples of similar solved problems.

Help with #1 & 2 continued
Add & Subtract Fractions

Same signs add & keep,
Different signs subtract &
Take the sign of the larger number
Then you'll be exact!

$$6\frac{4}{5} + 1\frac{7}{9}$$

×9 ×5

$$6\frac{36}{45} + 1\frac{35}{45}$$

$$\begin{array}{r} 6\frac{36}{45} \\ +1\frac{35}{45} \\ \hline 7\frac{71}{45} \end{array} = 8\frac{26}{45}$$

$$\begin{array}{r} 71 \\ -45 \\ \hline 26 \end{array}$$

$$9\frac{1}{6} - 2\frac{3}{5}$$

$$9\frac{5}{30} - 2\frac{18}{30}$$

$$\begin{array}{r} 8\cancel{9}\frac{5+30}{30} = 8\frac{35}{30} \\ -2\frac{18}{30} = -2\frac{18}{30} \\ \hline 6\frac{17}{30} \end{array}$$

Help with #3 & 4 continued
Divide Fractions

$$-\frac{3}{7} \div \frac{9}{21}$$

K C R

$$-\frac{\cancel{3}^{1}}{\cancel{7}_{1}} \times \frac{\cancel{21}^{7\,1}}{\cancel{9}_{3\,1}} = -\frac{1}{1} = -1$$

$$\frac{\frac{3}{5}}{\frac{12}{55}}$$

$$\frac{3}{5} \div \frac{12}{55}$$

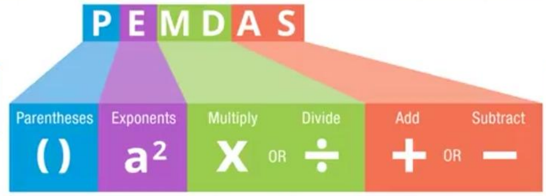
K C R

$$\frac{\cancel{3}^{1}}{\cancel{5}_{1}} \times \frac{\cancel{55}^{11}}{\cancel{12}_{4}} = \frac{11}{4} = 2\frac{3}{4}$$

$$4\overline{)11}\quad 2\frac{3}{4}$$

$$\begin{array}{r} 11 \\ -8 \\ \hline 3 \end{array}$$

Help with #5 & 6
Solving with Order of Operations



$[(8+2)^2 - 5] \div 5$

$[(10)^2 - 5] \div 5$

$10 \cdot 10$

$[100 - 5] \div 5$

$95 \div 5$

$= 19$

$$\begin{array}{r} 19 \\ 5\overline{)95} \\ -5 \\ \hline 45 \\ 45 \\ \hline \end{array}$$

$(-3)^2 + 4 \times 6$

$-3 \times -3 + 4 \times 6$

$9 + 4 \times 6$

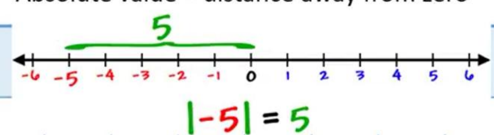
$9 + 24$

$= 33$

$$\begin{array}{r} 24 \\ +\ 9 \\ \hline 33 \end{array}$$

Help with #7 & 8
Solving with Absolute Value

Absolute value = distance away from zero



$|-11|$

11

$-|-2 \times 5|$

$-|-10|$

-10

Help with #9 & 10
Solving Proportions

$$\frac{2}{9} = \frac{x}{24}$$

$2(24) = 9x$

$\frac{48}{9} = \frac{\cancel{9}x}{\cancel{9}}$

$\frac{48}{9} = x$

$9\overline{)48}$ → $5\frac{3}{9}$, -45, 3

$5\frac{3}{9} = 5\frac{1}{3} = x$

12 *is what percent of* 50?

$$\boxed{\frac{is}{of} = \frac{\%}{100}}$$

$\frac{12}{50} = \frac{x}{100}$

$12(100) = 50x$

$\frac{1200}{50} = \frac{\cancel{50}x}{\cancel{50}}$

$\frac{1200}{50} = x$

$24\% = x$

$50\overline{)1200.}$ → $24.$, -100, 200, 200

Help with #11 & 12
Solving Probability

There is a container with 5 blue marbles, 6 pinks marbles, 7 yellow marbles, and 2 purple marbles.

$$\text{Probability} = \frac{number\ or\ outcomes\ I\ want}{total\ number\ of\ outcomes}$$

What is the probability of selecting a pink marble from the container?

$P_{(pink)} = \frac{6}{20} \frac{\div 2}{\div 2} = \frac{3}{10}$

0 impossible ← 1/2 → 1 absolute

What is the probability of selecting a pink marble and then a purple marble from the container, without replacing the first marble?

$P_{(pink, purple)}$ no replacement

$\frac{\cancel{6}^{3}}{\cancel{20}\ \cancel{10}\ 5} \times \frac{\cancel{2}^{1}}{19} = \frac{3}{95}$

$19 \times 5 = 95$

0 1/2 1

Help with #13 & 14
Solving Equations

$$4 = 3a + 2 - 5a$$

$$4 = -2a \cancel{+2}$$

$$4 - 2 = -2a$$

$$\frac{2}{-2} = \frac{\cancel{-2}a}{\cancel{-2}}$$

$$\frac{2}{-2} = a$$

$$-1 = a$$

$$3(x + 2) = 25$$

$$3x \cancel{+6} = 25 - 6$$

$$\frac{\cancel{3}x}{\cancel{3}} = \frac{19}{3}$$

$$x = \frac{19}{3}$$

$$3\overline{)19.}\quad 6\tfrac{1}{3}$$

$$-18$$

$$1$$

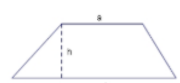
$$x = 6\tfrac{1}{3}$$

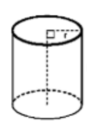
Help with #15 & 16
Area, Volume and Circumference

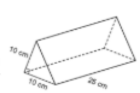
<u>Helpful formulas:</u>

Area of Circle = πr^2 

Area of Triangle = $\frac{bh}{2}$ 

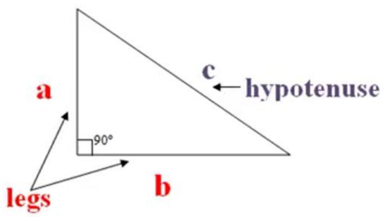
Area of Trapezoid = $\frac{(b_1+b_2)\cdot h}{2}$ 

Volume of Cylinder = $\pi r^2 \cdot h$ 

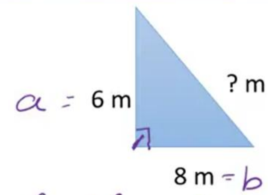
Volume of Triangular Prism = $\frac{bh}{2} \cdot h$ 

Circumference of Circle = $2\pi r$ 

Help with #17 & 18
Solving with Pythagorean Theorem



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



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

$6^2 + 8^2 = c^2$

$36 + 64 = c^2$

$100 = c^2$

$\sqrt{100} = \sqrt{c^2}$

$10 = c$
m

$6^2 + 8^2 = 10^2$

$36 + 64 = 100$

$100 = 100$ ✓

3, 4 & 5?

$3^2 + 4^2 = 5^2$

$9 + 16 = 25$

$25 = 25$ ✓

Help with #19 & 20
Solving with Square Roots

$\sqrt{\mathbf{49}}$

$7 = \sqrt{7 \cdot 7}$

$\sqrt{\mathbf{196}} = \sqrt{14 \cdot 14}$

2 98

2 49

7 7

$\sqrt{2 \cdot 2 \cdot 7 \cdot 7}$

$2 \cdot 7 = 14$

$$\begin{array}{r} 14 \\ \times 14 \\ \hline 56 \\ 14 \\ \hline 196 \end{array}$$

Help with #21 & 22

Help with #29 & 30

Arithmetic & Geometric Sequences

Arithmetic Sequence

45, 90, 135, 180, 225, 270, 315

+45 +45 +45 +45 +45 +45

90 - 45 = 45

135 - 90 = 45

180 - 135 = 45

$$\begin{array}{r} 135 \\ -\ 90 \\ \hline 45 \end{array} \qquad \begin{array}{r} 180 \\ -135 \\ \hline 45 \end{array}$$

$$\begin{array}{r} 180 \\ +\ 45 \\ \hline 225 \end{array} \qquad \begin{array}{r} 225 \\ +\ 45 \\ \hline 270 \end{array} \qquad \begin{array}{r} 270 \\ +\ 45 \\ \hline 315 \end{array}$$

Geometric Sequence

3, 9, 27, 81, 243, 729, 2,187

×3 ×3 ×3 ×3 ×3 ×3

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

$\frac{27}{9} = 3$

$\frac{81}{27} = 3$

$$\begin{array}{r} 81 \\ \times\ 3 \\ \hline 243 \end{array} \qquad \begin{array}{r} 243 \\ \times\ 3 \\ \hline 729 \end{array} \qquad \begin{array}{r} 729 \\ \times\ 3 \\ \hline 2{,}187 \end{array}$$