

9 July
7AC Final Exam Review Fractions, Integers Number Theory Practice

1. The temperature drops 3 degrees per hour for 4 hours. Which expression *does not* describe the change in temperature?

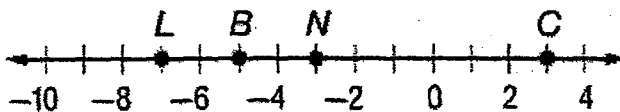
- a. $-3(4)$
- b. $-3+(-3)+(-3)+(-3)$
- c. $-3-3-3-3$
- d. $3(4)$

2. For a cookie recipe, Elizabeth used $4\frac{1}{2}$ cups of sugar. Gabby's recipe called for $3\frac{2}{3}$ cups of sugar. How much more sugar did Elizabeth use?

- a. $\frac{5}{6}$ cup
- b. $\frac{1}{3}$ cup
- c. $1\frac{1}{6}$ cup
- d. $8\frac{1}{6}$ cup

$$\begin{array}{r} 3\frac{1}{2} - 3\frac{2}{3} = \frac{6}{2} + \frac{12}{12} - \frac{18}{12} \\ -3\frac{2}{3} \frac{8}{12} \\ \hline \frac{10}{12} = \frac{5}{6} \end{array}$$

3. Which point has a coordinate with the least absolute value?



- a. Point B
- b. Point C
- c. Point L
- d. Point N

$$\begin{array}{l} L = |-7| = 7 \\ B = |-5| = 5 \\ N = |-3| = 3 \\ C = |3| = 3 \end{array}$$

4. On the last snow day, the temperature rose from -4°F to 32°F .
What was the total increase in temperature during this time period?

- a. 36°
b. 28°
c. 32°
d. 22°

$$32 \oplus (\oplus 4)$$

5. Which property is illustrated by the equation below?

$$7(3 + 5) = 7(3) + 7(5)$$

- a. Additive Inverse Property
b. Distributive Property
c. Associative Property of Addition
d. Additive Identity Property

6. Which of the following rational numbers is equivalent to a repeating decimal?

a. $\frac{25}{60} = .4\overline{16}$ b. $\frac{30}{32}$ c. $\frac{23}{50} = .46$ d. $\frac{25}{60} = .4\overline{16}$
 $.57692307\dots$

7. What fraction is between $\frac{3}{4}$ and $\frac{7}{8}$?

a. $\frac{5}{7}$ b. $\frac{2}{3}$ c. $\frac{3}{5}$ d. $\frac{5}{6}$
 $.7142\dots$ $.6$ $.6$ $.8\overline{3}$ $\frac{6}{8}$ $\frac{7}{8}$
 $.75$ $.875$

7AC Final Exam Review Expressions, Equations and Inequalities Practice

1. Which expression is equivalent to $15x - 5$?

a. $-5(3x-1)$

b. $5(3x-1)$

c. $5x(3-1)$

d. $15(x-1)$

$$\begin{array}{r} 5 \overline{) 15x - 5} \\ \underline{3x - 1} \\ 5(3x - 1) \end{array}$$

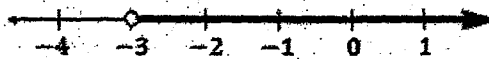
2. Which inequality is shown on the number line below?

a. $x < -3$

b. $x > -3$

c. $x \leq -3$

d. $x \geq -3$



$$x > -3$$

3. Solve for x: $5(x-2) = 25$

a. $x = 12$

b. $x = 7$

c. $x = 5$

d. $x = 3$

$$\begin{array}{r} 5(x-2) = 25 \\ 5x - 10 = 25 \\ \underline{+10 +10} \\ 5x = 35 \\ \underline{ } 5} \\ x = 7 \end{array}$$

4. Simplify the following expression: $10a + 6b - 5a + 2b$

a. $13ab$

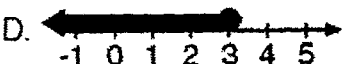
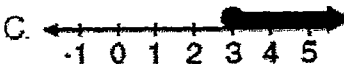
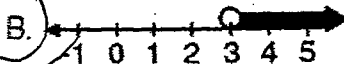
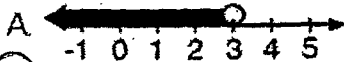
b. $-5a + 8b$

c. $5a + 8b$

d. $16a - 3b$

$$5a + 8b$$

5. Which graph represents the solution set of the inequality $2x + 3 > 9$?



$$\begin{array}{r} 2x + 3 > 9 \\ \underline{-3 -3} \\ 2x > 6 \\ \underline{ } 2} \\ x > 3 \end{array}$$

6. Solve for x: $32 = 5x + 22 - 3x$

a. $x = 27$

b. $x = 3$

c. $x = 10$

d. $x = 5$

$$\begin{array}{r} 32 = 2x + 22 \\ -22 \quad -22 \\ \hline 10 = 2x \\ \frac{10}{2} = \frac{2x}{2} \\ 5 = x \end{array}$$

7. What is the solution of $\frac{2}{3}x - 5 < 11$

a. $x < 9$

b. $x < 16$

c. $x < 24$

d. $x < 6$

$$\begin{array}{r} \frac{2}{3}x - 5 < 11 \\ +5 \quad +5 \\ \hline \frac{2}{3}x < 16 \\ \left(\frac{3}{2}\right) \frac{2}{3}x < 16 \left(\frac{3}{2}\right) \\ x < 24 \end{array}$$

8. Which of the following linear expressions cannot be factored?

a. $5x + 12$

b. $16x - 10$ $2(8x - 5)$

c. $8x - 4$ $4(8x - 1)$

d. $13x + 26$ $13(x + 2)$

9. Twenty five less than the product of a number and twenty is equal to 35. What is the number?

a. 3

b. 5

c. 10

d. 35

$$\begin{array}{r} 20x - 25 = 35 \\ +25 \quad 25 \\ \hline 20x = 60 \\ \frac{20x}{20} = \frac{60}{20} \\ x = 3 \end{array}$$

10. What is the solution to the equation $-\frac{1}{3}x + \frac{2}{3} = -\frac{11}{12}$?

a. $\frac{-10}{72}$

b. $4\frac{3}{4}$

c. $1\frac{1}{4}$

d. $\frac{11}{12}$

$$-\frac{2}{3} - \frac{2}{3} = -\frac{8}{12}$$

$$\left(-\frac{3}{1}\right) - \frac{1}{3}x = -\frac{19}{12} \left(-\frac{1}{1}\right)$$

$$x = \frac{19}{4} = 4\frac{3}{4}$$

11. Jack bought Solo tickets for himself and two of his friends. He paid \$9.50 for each ticket. If Jack has \$11.50 left, how much money did he have before he bought the movie tickets?

a. \$28.50

b. \$21.00

c. \$2.00

d. \$40.00

$$9.50(3) + 11.50$$

$$28.50 + 11.50$$

$$40.-$$

12. What is the GCF of $21xy$ and $9x$?

a. 9

b. $9x$

c. $3xy$

d. $3x$

3 x	$21xy, 9x$
	$7xy, 3x$
	$7x, 3$

13. Tony wants to take karate lessons. The dojo is having a special monthly membership with unlimited lessons. There is an initiation fee of \$20 and each month of membership costs \$52.50. If Tony pays \$230, write and solve an equation to determine how long his membership will last.

$$20 + 52.50x = 230$$

$$-20 \quad -20$$

$$52.50x = 210$$

$$\frac{52.50x}{52.50} = \frac{210}{52.50}$$

$$x = 4 \text{ months}$$

14. The lacrosse team needs to score at least 42 goals this season to set a new school record. They have already scored 30 goals. Write an inequality to represent this situation, solve the inequality, and then graph the solution on the number line.

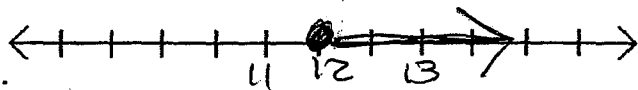
(a) Write an inequality: $x + 30 \geq 42$

(b) Solve the inequality:

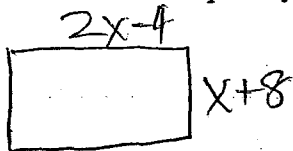
$$\begin{array}{r} x + 30 \geq 42 \\ -30 \quad -30 \\ \hline x \geq 12 \end{array}$$

(c) Graph the solution on the number line:

15. A rectangle has side lengths $(x+8)$ and $(2x-4)$.



(a) Write an expression that represents the perimeter of the rectangle. Express your answer in *simplest form*.



Perimeter = $6x + 8$

$$2x - 4 + x + 8 + 2x - 4 + x + 8 = 6x + 8$$

(b) Factor the expression you found in part (a).

$$2 \left(\frac{6x + 8}{3x + 4} \right)$$

$$2(3x + 4)$$

7AC Final Exam Review Ratio and Percents Practice

1. There are four math classes in room 301. You counted the number of boys and girls in each class. Your results are shown in the table below.

Period	Boys	Girls
2	7	14
4	8	12
7	9	21
9	7	11

Based on the table, which school has the greatest ratio of soccer players to football players?

- a. Period 2
- b. Period 4
- c. Period 7
- d. Period 9

2. A bicycle costs \$245 and the sales tax is 8.625%. What is the total cost of the trampoline?

- a. \$19.60
- b. \$21.13
- c. \$223.87
- d. \$260.31

3. A coat is on sale for \$60. If this price represents a 20% discount from the original price, what was the original price of the coat?

- a. \$12
- b. \$48
- c. \$72
- d. \$75

$$\frac{60}{x} = \frac{80}{100}$$

$$\frac{80x}{80} = \frac{6000}{80}$$

$$x = 75$$

4. Jaden sold 52 tickets in 30 minutes. At this rate, how many tickets would he sell in a 45 minute lunch period?

- a. 30
- b. 78
- c. 97
- d. 104

$$\frac{52}{30} = \frac{x}{45}$$

$$\frac{30x}{30} = \frac{2340}{30}$$

$$x = 78$$

5. A model train is 8 inches long. The model uses the scale .5in: 4yds. Which of the following proportions can be used to find x, the length in yards of the actual train?

a. $\frac{8}{4} = \frac{0.5}{x}$

b. $\frac{0.5}{8} = \frac{4}{x}$

c. $\frac{0.5}{8} = \frac{x}{4}$

d. $\frac{0.5}{4} = \frac{x}{8}$

$\frac{\text{in}}{\text{yd}} \cdot \frac{.5}{4} = \frac{8 \text{ in}}{x \text{ yd}}$

or

$\frac{\text{in}}{\text{in}} \cdot \frac{.5}{8} = \frac{4 \text{ yd}}{x \text{ yd}}$

6. Sam invests \$525 into a savings account that earns 2.4% simple interest. He plans on leaving the money in the account for 5 years. What will the final balance of the savings account be after 5 years?

- a. \$12.60
- b. \$63.00
- c. \$462.00
- d. \$588.00

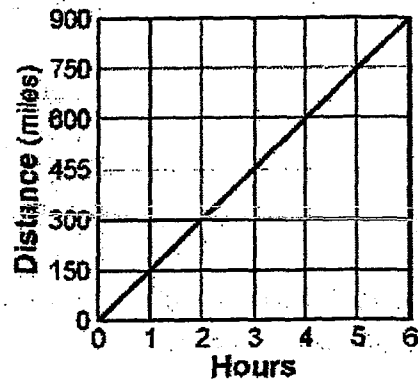
$I = prt$
 $I = 525(.024)5$
 $I = 63$

Total - $525 + 63 = 588.-$

7. The graph shown represents the distance a racecar drives during a six hour race. What is the constant of proportionality?

- a. $\frac{1}{150}$
- b. 150
- c. 200
- d. $\frac{1}{200}$

$K = \frac{y}{x} = \frac{150}{1} = \frac{300}{2} = \frac{450}{3} = \frac{600}{4} = \frac{750}{5} = \frac{900}{6} = 150$



8. What is the unit price if 4.3pounds cost \$13.76?

- a. \$0.86 per ounce
- b. \$0.27 per ounce
- c. \$3.20 per ounce
- d. \$0.20 per ounce

$\frac{13.76}{4.3} = 3.20$

9. Which table shows a proportional relationship?

$$k = \frac{y}{x}$$

X Groceries 2 U Y

A

Number of Apples	Total Cost
10	\$2.00
20	\$3.50
30	\$5.50
40	\$7.00

.2
.175

X The Market Y

C

Number of Apples	Total Cost
10	\$2.50
20	\$4.00
30	\$6.00
40	\$7.50

.25
.20

X The Dotted Grocer Y

B

Number of Apples	Total Cost
10	\$2.00
20	\$4.00
30	\$6.00
40	\$8.00

(D)

X Web Grocer Y

Number of Apples	Total Cost
10	\$2.50
20	\$5.00
30	\$7.50
40	\$9.50

.25
.25
.25
.25

10. A map has a scale of 1.5 inches : 450 miles. If the distance between two cities is 3.5 inches on the map, what is the actual distance between the cities?

- a. 675 mi
- (b. 1050 mi)
- c. 1350 mi
- d. 1575 mi

$$\frac{1.5}{450} = \frac{3.5}{x}$$

$$\frac{1.5x}{1.5} = \frac{1575}{1.5}$$

$$x = 1050 \text{ mi}$$

11. Anna drove 130 miles in $3\frac{1}{4}$ hours.

What was her average speed in miles per hour?

- a. 52 miles per hour
- b. 46 miles per hour
- c. 43 miles per hour
- (d. 40 miles per hour)

$$\frac{130}{3\frac{1}{4}} = \frac{130}{3} \div 3\frac{1}{4}$$

$$\frac{130}{3} \div \frac{13}{4}$$

$$10\frac{10}{3} \cdot \frac{4}{13}$$

$$40 \text{ mph}$$

12. A pair of sneakers that normally sells for \$120 is on sale for \$86.40.
What is the percent of discount for the sale price?

- a. 72%
b. 28%
c. 15%
d. 12%

$$\frac{86.40}{120} = \frac{x}{100}$$
$$\frac{120x}{120} = \frac{8640}{120}$$
$$x = 72$$

13. Solve for a:

$$\frac{1.5}{a} = \frac{5}{8}$$

- a. $a = 24$
b. $a = 6.25$
c. $a = 3.3$
d. $a = 2.4$

$$\frac{5a}{5} = \frac{12}{5}$$
$$a = 2.4$$

14. John bought 3 chargers at \$15 each. He had a coupon for 10% off. The sales tax was 8%. Find the total cost of the 3 chargers after the discount and sales tax are applied.

$$15(3) = 45$$

$$\text{dis} - 45(0.1) = 4.50$$

$$\text{sp} - 45 - 4.50 = 40.50$$

$$\text{tax} - 40.50(0.08) = 3.24$$

$$\text{total} - 40.50 + 3.24$$

$$\text{TC} - 43.74$$

7AC Final Exam Review Probability and Statistics Practice

1. A closet has five shirts, two pairs of pants, and three pairs of shoes. How many different outfits can you make from what is in the closet?

- a. 10
- b. 25
- c. 30
- d. 75

$$5 \cdot 2 \cdot 3 = 30$$

2. In a survey, students were asked to choose their favorite movie genre.

The table shows the results. Based on these data, predict how many out of 1,200 students would choose to see a comedy.

Favorite Movie Genre	
Genre	Percent
Action	42
Comedy	35
Horror	23

- a. 276
- b. 420
- c. 504
- d. 780

$$\frac{35}{100} = \frac{x}{1200}$$

$$\frac{100x = 42,000}{100} \quad \frac{42,000}{100}$$

$$x = 420$$

100

3. What is the probability of tossing heads on the flip of a coin and rolling a number greater than 2 on a number cube?

- a. $\frac{1}{3}$
- b. $\frac{1}{6}$
- c. $\frac{1}{2}$
- d. $\frac{1}{4}$

$$\frac{1}{2} \cdot \frac{4}{6} = \frac{4}{12} = \frac{1}{3}$$

1, 2, 3, 4, 5, 6

4. If the probability that it will rain on Saturday is $\frac{5}{8}$, what is the probability that it will not rain on Saturday?

a. 1

b. 0

c. $\frac{5}{8}$

d. $\frac{3}{8}$

$$\frac{8}{8} - \frac{5}{8} = \frac{3}{8}$$

5. Use the data set \$19, \$18, \$15, \$17, \$19, \$12, \$19, and \$15. Which measure of center would you use to convince people that the prices are high?

- a. Mean
- b. Mode
- c. Median
- d. Range

12, 15, 15, 15, 17, 18, 19, 19, 19

no outliers so mean is best measure of center.

6. In a survey, 100 students were asked to name their favorite type of movie. The results are shown in the table. What is the experimental probability of action movies being someone's favorite? Express as a fraction in simplest form.

- a. $\frac{9}{25}$
- b. $\frac{1}{5}$
- c. $\frac{6}{25}$
- d. $\frac{3}{25}$

$$\frac{36}{100} = \frac{9}{25}$$

Favorite Movie Genre	
Animated	21
Action	36
Comedy	23
Horror	20

100

7. Anthony wants to know how often the residents in his neighborhood go to the beach. Which sampling method will give valid results?

- A. He asks all the members of the swim team at his school.
- B. He asks all his family members and friends.
- C. He posts a question on a community Web site.
- D. He asks three random households from each street in his neighborhood.

8. There are 8 blue marbles, 6 yellow marbles, and 6 red marbles in a bag. Alfonse reaches into the bag without looking and picks a marble. What is the probability he picks a red marble?

a. $\frac{1}{3}$

b. $\frac{1}{2}$

c. $\frac{1}{6}$

d. $\frac{3}{10}$

$$\frac{6}{20} = \frac{3}{10}$$

9. Which of the following represents two dependent events?

- a. selecting a sock from a drawer, not replacing it, and selecting another sock
- b. selecting a sock from a drawer, replacing it, and selecting another sock
- c. drawing a card from a deck, replacing it, and drawing another card
- d. flipping two coins

10. An airline had 84 flights last week. 63 were on time.

a) What is the experimental probability that a flight was on time?

$$\frac{63}{84} = \frac{9}{12} = \left(\frac{3}{4}\right)$$

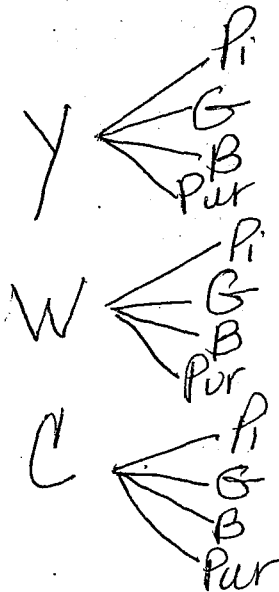
b) If 15000 flights are scheduled this year, how many are expected to be on time?

$$\frac{63}{84} = \frac{X}{15000} \quad X = 11,250 \text{ flights}$$
$$\frac{84X}{84} = \frac{145,000}{84}$$

11. A baker can make yellow, white, or chocolate cake with pink, green, blue or purple frosting.

(a) Draw a tree diagram or list the sample space to find the total number of outcomes of baking a cake with frosting.

$$3 \cdot 4 = 12$$



(b) How many possible cakes can be made? 12

(c) Find P(chocolate cake with pink frosting) $\frac{1}{12}$

12 The data shows the number of hours each month 2 groups of students reported that they watched TV.

Group 1: ~~32~~, ~~33~~, 37, 35, 37, 38, ~~33~~, ~~35~~, ~~35~~

Group 2: ~~27~~, ~~27~~, 30, 20, ~~26~~, ~~25~~, ~~28~~, ~~28~~, ~~23~~

Median -
middle # after
numbers in order

a) Find the median for each class.

Group 1 - 32, 33, 33, 35, (35), 35, 37, 37, 38
median

Group 2 - 20, 23, 25, 26, (27), 27, 28, 28, 30
median

a) Write a statement comparing the number of hours each group spent watching TV.

Group 1 spent more hours watching TV.

7AC Final Exam Review Geometry Practice

1. A softball has a diameter of 3.5in. What is the circumference of the softball?

- a. 3.5π
- b. 7π
- c. π
- d. 12.25π

$$C = \pi d$$

$$C = 3.5\pi$$

2. Which two angle measures are supplementary?

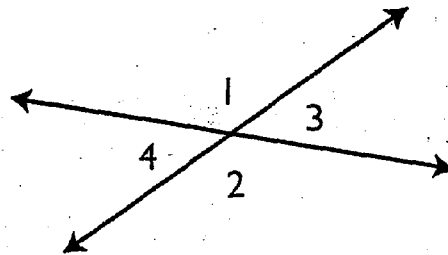
- a. 63° and 37°
- b. 51° and 129°
- c. 43° and 47°
- d. 142° and 48°

$$\begin{array}{r} 63 \\ 37 \\ \hline 100 \end{array} \quad \begin{array}{r} 51 \\ +129 \\ \hline 180 \end{array}$$

Supplementary angles equal 180°

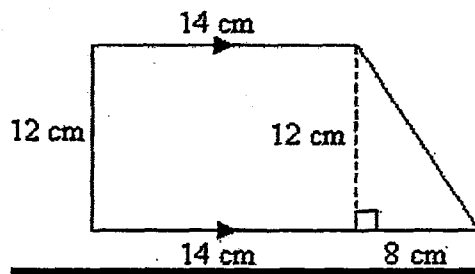
3. Which term describes $\angle 1$ and $\angle 2$?

- a. supplementary
- b. complementary
- c. vertical
- d. congruent



4. What is the area of this figure?

- a. 48 in.^2
- b. 72 in.^2
- c. 168 in.^2
- d. 216 in.^2



$$A = lw \quad A = \frac{1}{2}bh$$

$$A = 14(12) \quad A = \frac{1}{2}(8)(12)$$

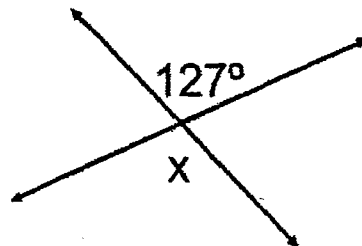
$$A = 168 \quad A = 48$$

Total Area = $168 + 48 = 216 \text{ in.}^2$

5. The figure shows two intersecting lines. What is the value of x?

- a. 43°
- b. 53°
- c. 90°
- d. 127°

Vertical angles
 $x = 127$



6. Two ^{90°}complementary angles are in the ratio 1:4. What is the measure of the *smaller* angle?

- a. 18°
- b. 22.5°
- c. 45°
- d. 90°

$$\begin{aligned}
 1x + 4x &= 90 \\
 5x &= 90 \\
 \frac{5x}{5} &= \frac{90}{5} \\
 x &= 18
 \end{aligned}
 \qquad
 \begin{aligned}
 1x &= 18 \\
 4x &= 72
 \end{aligned}$$

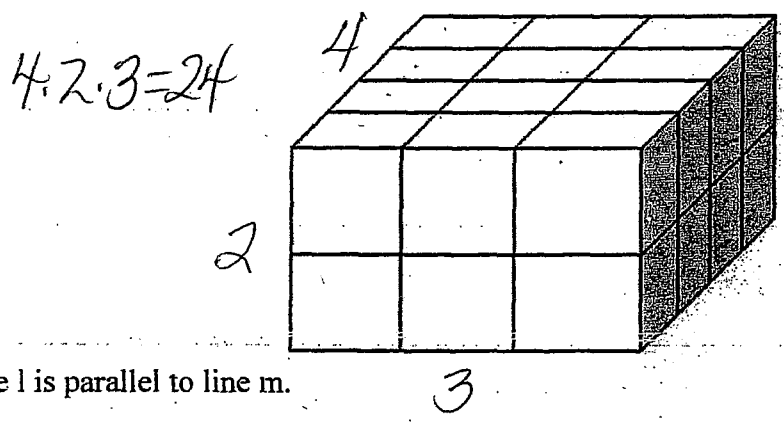
7. If the circumference of a circle is expressed as 30π ft, what is the radius?

- a. 10 ft
- b. 15 ft
- c. 30 ft
- d. 90 ft

$$\begin{aligned}
 C &= 2\pi r \\
 30\pi &= 2\pi r \\
 \frac{30\pi}{2\pi} &= \frac{2\pi r}{2\pi} \\
 15 &= r
 \end{aligned}$$

8. How many blocks were needed to make the rectangular prism below?

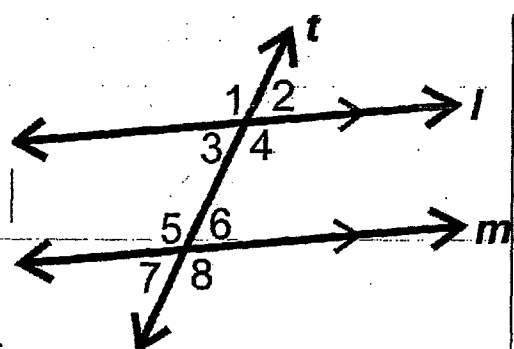
- a. 12 blocks
- b. 24 blocks
- c. 36 blocks
- d. 48 blocks



9. In the figure shown, line l is parallel to line m .

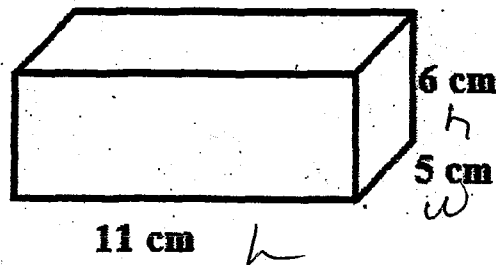
What type of angles are $\angle 1$ and $\angle 3$?

- a. vertical angles
- b. adjacent angles
- c. right angles
- d. regular angles



adjacent -
next to & share
common ray

10. Find the surface



Area:

$$SA = 2lw + 2lh + 2wh$$

$$SA = 2(11)(5) + 2(11)(6) + 2(5)(6)$$

$$SA = 110 + 132 + 60$$

$$SA = 302 \text{ cm}^2$$

11. Calculate the area of the shaded region.

$$A = bh$$

$$A = \pi r^2$$

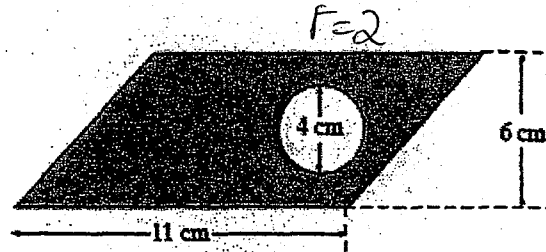
$$A = 11(6)$$

$$A = \pi(2)^2$$

$$A = 66$$

$$A = 4\pi$$

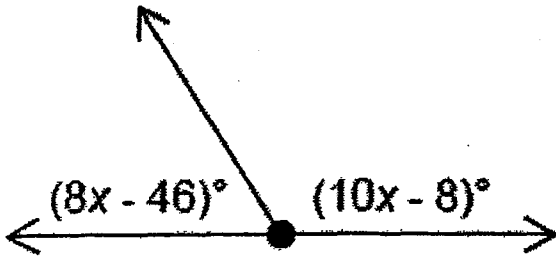
$$A = 12.5663704$$



$$SR = 66 - 12.5663704$$

$$SR = 53.4336296 \text{ cm}^2$$

12. Find x . Then find the measure of each angle.



$$8x - 46 + 10x - 8 = 180$$

$$18x - 54 = 180$$

$$+ 54 \quad + 54$$

$$\frac{18x = 234}{18 \quad 18}$$

$$x = 13$$

$$\begin{array}{r|l} 8x - 46 & 10x - 8 \\ \hline 8(13) - 46 & 10(13) - 8 \\ 104 - 46 & 130 - 8 \\ 58 & 122 \end{array}$$

