Key

Eastern School District

Grade 7
Common Mathematics Assessment

June 12, 2013

Section A: No Calculator Permitted

Name: _____

Mathematics Teacher: _____

Homeroom: _____

IMPORTANT

You will need to complete your name and school information in three places:

1. Section A
2. Section B
3. Answer Sheet

Section A: No Calculator Permitted

16 Selected Response	16 points
7 Constructed Response	16 points
Total	32 points

Section B: Calculator Permitted

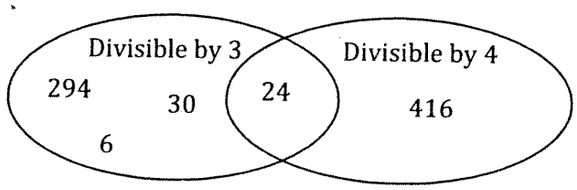
24 Selected Response	24 points
9 Constructed Response	24 points
Total	48 points

FINAL **80 POINTS**

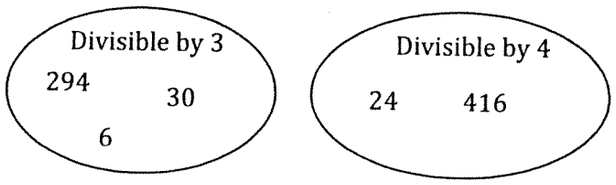
Selected Response: No Calculator Permitted.
For items 1 – 16, circle the appropriate response on the answer sheet.

1. Which Venn diagram correctly shows the divisibility rules for 3 and 4?

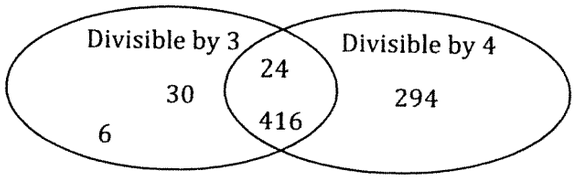
(A)



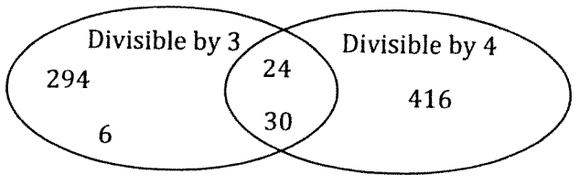
(B)



(C)



(D)



2. Which describes the algebraic expression $5n + 2$?

(A) A number is doubled and increased by 5.
(B) Half a number is increased by 5.
(C) Five times a number is increased by 2.
(D) One-fifth of a number is increased by 2.

3. Which represents 8°C cooler than -3°C ?

(A) $(-8) - (-3) = (-5)$
(B) $(-3) - (-8) = (+5)$
(C) $(+8) - (-3) = (+11)$
(D) $(-3) - (+8) = (-11)$

4. Calculate: $(+5) + (-9)$

(A) -14
(B) -4
(C) 4
(D) 14

5. Which represents (+2) ?

(A) ⊕⊖

(B) ⊕⊕⊖

(C) ⊕⊕⊖⊖⊖⊖

(D) ⊕⊕⊕⊕⊖⊖

6. Which represents (−2) ?

(A) An elevator goes up 6 floors and then down 2 floors.
(B) Walk 4 steps forward and 6 steps back.
(C) The temperature rises 8°C from −2°C .
(D) Getting an allowance of $12 is followed by spending $10.

7. What is $\frac{3}{20}$ as a percent?

(A) 3%
(B) 6%
(C) 12%
(D) 15%

8. Which is between $\frac{3}{5}$ and 0.8 ?

(A) 0.4 0.6
(B) 0.6
(C) $\frac{7}{10}$
(D) $\frac{4}{5}$

9. Which represents front end estimation for the product 8.3×13.7 ?

(A) $8 \times 13 = 104$
(B) $8 \times 14 = 112$
(C) $9 \times 13 = 117$
(D) $9 \times 14 = 126$

10. Which has a repeating decimal?

(A) $\frac{8}{25}$
(B) $\frac{2}{5}$
(C) $\frac{1}{2}$
(D) $\frac{2}{3}$

11. Write in order from least to greatest: $\frac{13}{10}$, 0.35, 1, $1\frac{4}{9}$

(A) 0.35, 1, $1\frac{4}{9}$, $\frac{13}{10}$

(B) 0.35, 1, $\frac{13}{10}$, $1\frac{4}{9}$

(C) 0.35, $\frac{13}{10}$, 1, $1\frac{4}{9}$

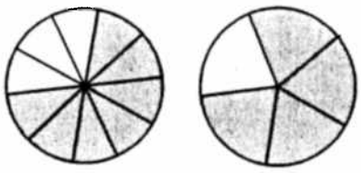
(D) $1\frac{4}{9}$, 1, $\frac{13}{10}$, 0.35

1.3 0.35 1 $1.\overline{4}$

0.35 1 1.3 $1.\overline{4}$

0.35 1 $\frac{13}{10}$ $1\frac{4}{9}$

12. Which is modelled below?



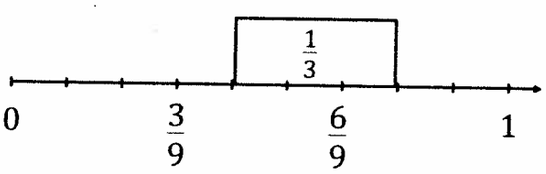
(A) $\frac{7}{10} + \frac{4}{5} = \frac{11}{15}$

(B) $\frac{7}{10} + \frac{4}{5} = \frac{11}{10} = 1\frac{1}{10}$

(C) $\frac{7}{10} + \frac{4}{5} = \frac{15}{10} = 1\frac{1}{2}$

(D) $\frac{7}{10} + \frac{4}{5} = \frac{11}{5} = 2\frac{1}{5}$

13. Which is modelled below?



(A) $\frac{1}{3} - \frac{4}{9} = \frac{7}{9}$

(B) $\frac{1}{3} - \frac{7}{9} = \frac{4}{9}$

(C) $\frac{4}{9} - \frac{1}{3} = \frac{7}{9}$

(D) $\frac{7}{9} - \frac{1}{3} = \frac{4}{9}$

$\frac{7}{9} - \frac{1}{3} = \frac{4}{9}$

$\frac{7}{9} - \frac{3}{9}$ ↗

14. A student did not receive full marks for her solution below. In which step did she make her **first** error?

$$2\frac{4}{7} - 1\frac{1}{3}$$

$Step\ 1 \quad = \frac{18}{7} - \frac{4}{3}$

$Step\ 2 \quad = \frac{14}{4}$

$Step\ 3 \quad = 3\frac{2}{4}$

$Step\ 4 \quad = 3\frac{1}{2}$

(A) 1
(B) 2
(C) 3
(D) 4

15. Lisa spent $\frac{2}{3}$ hour doing homework in the morning and $\frac{2}{15}$ hour doing homework in the afternoon. What fraction of an hour did she spend doing homework?

(A) $\frac{2}{9}$

(B) $\frac{4}{15}$

(C) $\frac{8}{15}$

(D) $\frac{4}{5}$

$\frac{2}{3} + \frac{2}{15}$

$\frac{10}{15} + \frac{2}{15} = \frac{12}{15} = \frac{4}{5}$

16. Noel and his friends shared an orange that was separated into 8 equal pieces. Noel ate 1 piece, one friend ate 2 pieces, and the other friend ate 4 pieces. What fraction of the orange is left?

(A) $\frac{0}{8}$

(B) $\frac{1}{8}$

(C) $\frac{7}{8}$

(D) $\frac{8}{8}$

Constructed Response: No Calculator Permitted.
Answers to be written on this paper in the space provided. Show all workings.

17. Name **two pairs** of integers that have a difference of (-1) and write each subtraction statement. [2 points]

(+6)	(+5)
(-8)	
(-5)	(-9)
(+8)	

$(+5) - (+6) = -1$ (1)

$(-9) - (-8) = -1$ (1)

18. A submarine was 10 m below sea level when the captain spotted a whale 8 m below him. [2 points]

a) Write an **addition** equation to determine the distance the whale was below the surface of the water.

$d = (-10) + (-8)$ (1)

b) Solve the equation using a method of your choice.

$\text{distance} = (-10) + (-8)$ (1)

$= (-18)$

The whale was 18m below the surface.

19. Explain why 60% is **not** a good estimate for 35 out of 80. [2 points]

Since 35/80 is less than half, (1)
the % should be less than 50%. (1)

20. Calculate: $1.5 + 6.6 \div (0.4 + 2.6)$ [3 points]

$= 1.5 + 6.6 \div (3.0)$ ①

$= 1.5 + 2.2$ ①

$= 3.7$ ①

21. Janet's lunch bill at a restaurant was $25.00, tax included. She decided to leave a 15% tip. [2 points]

a) Calculate how much she left for a tip.

15% of 25.00

$= 25.00 \times 0.15$

$\begin{array}{r} 12500 \\ 2500 \\ \hline 3.7500 \end{array}$

Tip = $3.75 ①

b) Calculate the total cost of her lunch.

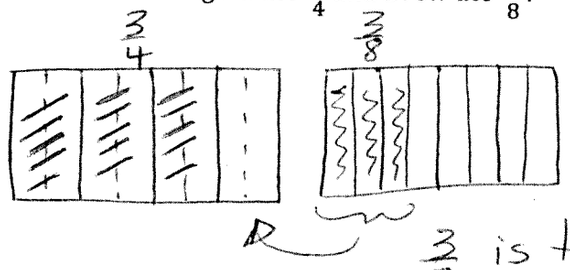
Total Cost = $25.00 + 3.75

$28.75 ①

22. Two people shared **one** pizza. Which statement below is true? [2 points]

Model each situation to explain your thinking.

Statement A: *Angela ate* $\frac{3}{4}$ *and Drew ate* $\frac{3}{8}$.

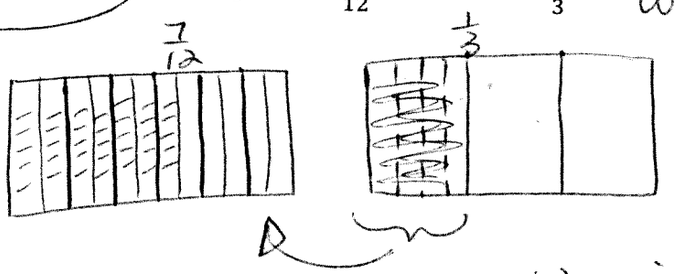


(1)

$\frac{3}{8}$ is too big to fit into the remaining $\frac{1}{4}$ (or $\frac{2}{8}$), so it would be more than one pizza.

Statement B: *Angela ate* $\frac{7}{12}$ *and Drew ate* $\frac{1}{3}$.

True



(1)

$\frac{1}{3}$ (or $\frac{4}{12}$) will fit with the $\frac{7}{12}$ to make less than 1 pizza.

23. Calculate: $2\frac{1}{6} - 1\frac{3}{4} + \frac{1}{2}$ [3 points]

$= (1)\ 2\frac{2}{12} - 1\frac{9}{12} + \frac{6}{12}$

$= (1)\ \frac{26}{12} - \frac{21}{12} + \frac{6}{12}$

$= (\frac{1}{2})\ \frac{5}{12} + \frac{6}{12}$

$= (\frac{1}{2})\ \frac{11}{12}$

OR

$\frac{13}{6} - \frac{7}{4} + \frac{1}{2}$

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End of Section A.
Please raise your hand and your teacher will collect Section A.
You may now begin Section B.

Eastern School District

Grade 7
Common Mathematics Assessment

June 12, 2013

Section B: Calculator Permitted

Name: _____

Mathematics Teacher: _____

Homeroom: _____

Section A: No Calculator Permitted

16 Selected Response	16 points
7 Constructed Response	16 points
Total	32 points

Section B: Calculator Permitted

24 Selected Response	24 points
9 Constructed Response	24 points
Total	48 points

FINAL **80 POINTS**

Selected Response: Calculator Permitted.
For items 24 – 47, circle the appropriate response on the answer sheet.

24. Evaluate $\frac{c}{2} - 8$ for $c = 20$.

(A) 2
(B) 6
(C) 18
(D) 32

$\frac{20}{2} - 8$
$10 - 8$

25. Which algebraic expression has a numerical coefficient of 6?

(A) $a + 6 + 12$
(B) $6b + 12$
(C) $c + 6$
(D) $2 - 6d$

26. Which describes the relationship between the diagram number (d), and the number of toothpicks (t)?

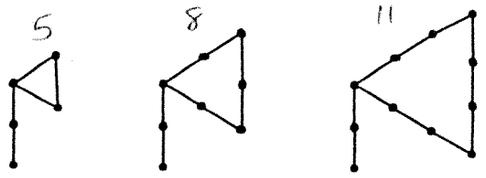


Diagram #1 Diagram #2 Diagram #3

(A) $d = 3t$
(B) $d = 3t + 2$
(C) $t = 3d$
(D) $t = 3d + 2$

27. Out of 350 students at a junior high school, 80% participate in the breakfast program. How many students participate?

(A) 70
(B) 80
(C) 270
(D) 280

$80\% \times 350 = 350 \cdot 8 = 280.0$

28. How many 0.6 L glasses can be filled from a 1.8 L jug of lemonade?

(A) 1
(B) 2
(C) 3
(D) 4

$0.6\overline{)1.8}$ → 3.
18

29. A circle has a radius of 8 cm. Estimate its area.

(A) 24 cm^2
(B) 48 cm^2
(C) 64 cm^2
(D) 192 cm^2

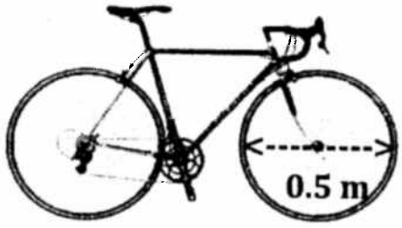
$A = 3 \cdot r \cdot r$
$= 3 \cdot 8 \cdot 8$

30. The area of a triangle is 24 cm^2. What is the area of a parallelogram with the same base length and height as the triangle?

(A) 12 cm^2
(B) 24 cm^2
(C) 48 cm^2
(D) 75 cm^2

$P = 2 \cdot \Delta = 2(24) = 48$

31. The wheels on Brittney's bicycle have a diameter of 0.5 m. If she rides a total distance of 500 m, how many complete turns does the wheel make?

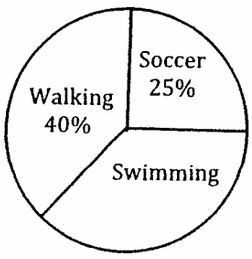


$C = \pi \cdot d = 3.14(0.5)$
$= 1.57$
$500 \div 1.57 = 318.47$

(A) 250
(B) 318
(C) 785
(D) 1000

32. Jeff exercises 60 hours every month. How many **hours** does he spend swimming?

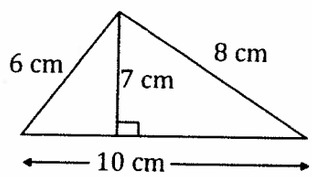
Jeff's Monthly Exercise



35% of 60 $\quad \cdot 35 \times 60 = 21.00$

(A) 21
(B) 27
(C) 35
(D) 39

33. The solution to finding the area of the given triangle is incorrect. In which step is the **first** error made?



Step 1: $A = \frac{bh}{2}$

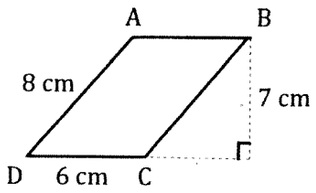
Step 2: $A = \frac{10\ cm \times 6\ cm}{2}$

Step 3: $A = \frac{60\ cm^2}{2}$

Step 4: $A = 30\ cm$

(A) 1
(B) 2
(C) 3
(D) 4

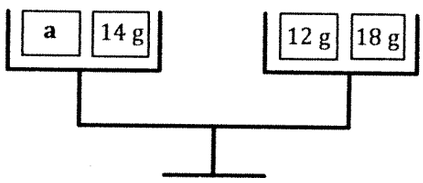
34. Calculate the area of parallelogram $ABCD$.



$b \cdot h = 6 \cdot 7 = 42$

(A) $21\ cm^2$
(B) $24\ cm^2$
(C) $42\ cm^2$
(D) $48\ cm^2$

35. What is the value of a?



$a + 14 = 12 + 18$
$a + 14 = 30$
$a = 16$

(A) 14
(B) 16
(C) 30
(D) 44

36. Which value of n makes the equation $3n - 4 = 8$ true?

(A) 2
(B) 3
(C) 4
(D) 5

$3n = 8 + 4$
$3n = 12$
$n = 4$

37. Overnight the temperature dropped 7°C to −20°C. Which equation could be used to find the original temperature?

$t - 7 = -20$

(A) $t - 7 = (-20)$
(B) $t + (-20) = 7$
(C) $t - (-7) = (-20)$
(D) $t + 20 = (-7)$

38. Ricky worked h hours. Shawn worked twice as many hours as Ricky. If Shawn worked a total of 30 hours, which equation could be used to find the number of hours that Ricky worked?

R	S
h	2h
	30

(A) $\frac{2}{h} = 30$
(B) $\frac{h}{2} = 30$
(C) $2h = 30$
(D) $30h = 2$

$\frac{2h}{2} = \frac{30}{2}$

$h = 15$

39. Erin had a mean mark of 85% on her math tests this year. Then she received a grade of 92%. How did it affect the mean?

(A) The mean increased.
(B) The mean decreased.
(C) There was no change in the mean.
(D) The test was not used because it was an outlier.

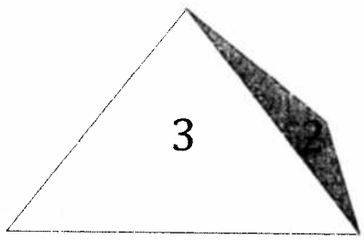
40. What is the outlier in the given data set?

{28, 32, 32, 32, 38, 84, 36, 44, 42, 46}

(A) 32
(B) 46
(C) 56
(D) 84

41. On a tetrahedron with sides labelled 1 to 4, what is the probability of **not** rolling a 4?

(A) 4%
(B) 25%
(C) 50%
(D) 75%



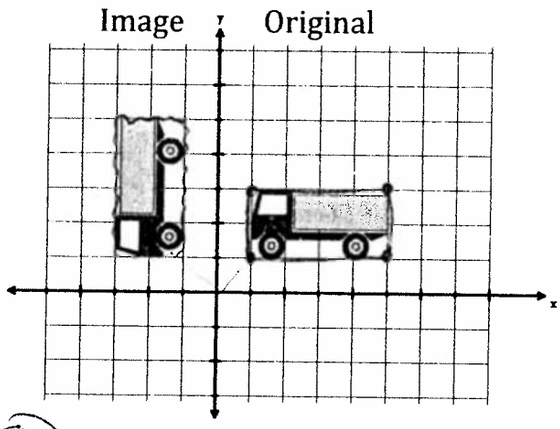
42. Kathy has three shirts that are yellow, purple, and blue, respectively. The shirts can be paired with jeans, dress pants, or a skirt. How many outfits can be created?

(A) 3
(B) 6
(C) 9
(D) 12

3(3) = 9

Y ≤
P ≤
B ≤

43. Which transformation is demonstrated?

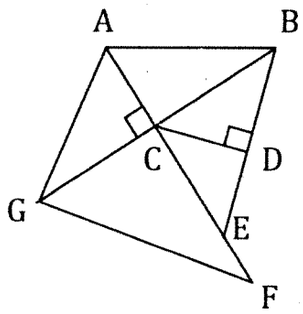


(A) 90° CCW rotation about the origin
(B) 90° CW rotation about the origin
(C) reflection in the y-axis
(D) translation 2 units left

44. What is a line that intersects another line at right angles and divides it into two equal parts?

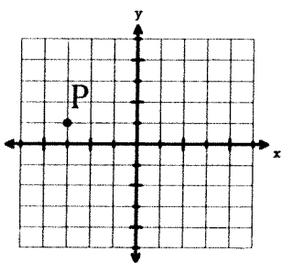
(A) angle bisector
(B) parallel line
(C) perpendicular bisector
(D) perpendicular lines

45. Which statement is true?



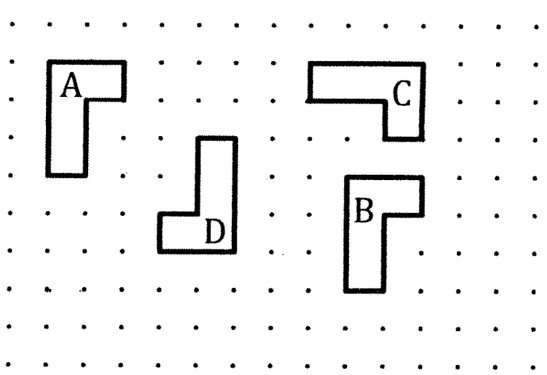
(A) $\overline{AB} \parallel \overline{GB}$
(B) $\overline{AB} \perp \overline{GF}$
(C) $\overline{CD} \perp \overline{BE}$
(D) $\overline{GB} \parallel \overline{AF}$

46. What are the coordinates of point P?



(A) $(-3,-1)$
(B) $(-3,1)$
(C) $(-1,-3)$
(D) $(1,-3)$

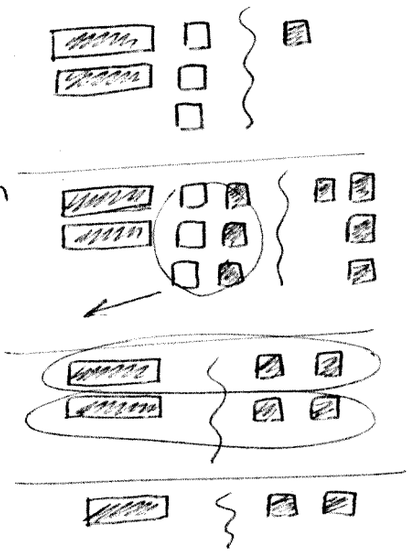
47. Which is true?



(A) Figure A is a reflection of figure D.
(B) Figure C is a 90° CCW rotation of Figure B.
(C) Figure A is a translation of Figure B, 9 left and 3 up.
(D) Figure B is a translation of Figure A, 8 right and 3 down.

Constructed Response: Calculator Permitted.
Answers to be written on this paper in the space provided. Show all workings.

48. Solve, using a method of your choice: $2n - 3 = 1$ [2 points]



(½) each

$n = 2$

OR

$2n - 3 = 1$

① $2n - 3 + 3 = 1 + 3$

(½) $\frac{2n}{2} = \frac{4}{2}$

(½) $n = 2$

OR Systematic Trial.

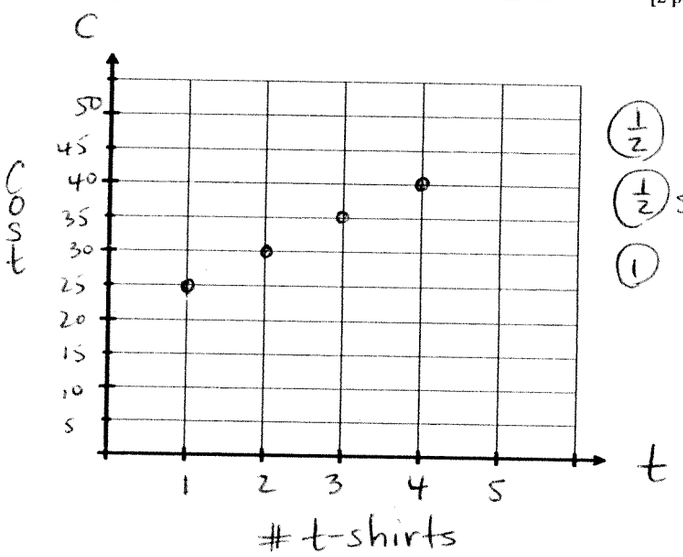
49. Eastern Junior High is ordering t-shirts for Pink Day. The t-shirt supplier charges a one-time fee of $20 to create a logo and $5 for each t-shirt purchased.

a) Complete the table: [1 point]

Number of t-shirts (t)	Total Cost (c)
1	25
2	30
3	35
4	40

①

b) Graph the relation. Label the axes. [2 points]



(½) labels
(½) scale
① pts.

c) Write the equation for the cost of t-shirts and use it to calculate the total cost for 100 t-shirts. [2 points]

$C = 20 + 5t$ ①

$C = 20 + 5(100)$ (½)

$C = \$520$ (½) Total cost for 100 t-shirts is $520.

50. a) Solve algebraically: $\frac{x}{3} = 5$ [2 points]

$3 \cdot \frac{x}{3} = 3 \cdot 5$ (1/2)

$x = 15$ (1/2)

b) Verify your solution.

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

$= \frac{15}{3}$ (1/2)

$= 5 = RS$ (1/2)

51. A grade 7 class surveyed 20 students to find out their favourite flavour of ice cream. They will use the data in the table to construct a circle graph. [2 points]

Flavour	# of Students	Fraction	Percent	Central Angle
Vanilla	9			
Chocolate	5			
Cookie Dough	6			
TOTAL	20			

Explain how to find the measure of the central angle for **Vanilla** only.

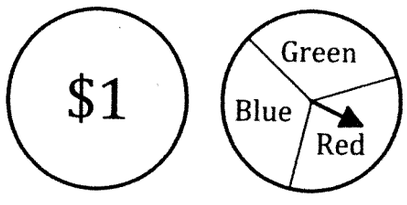
First find the fraction of students who like vanilla:

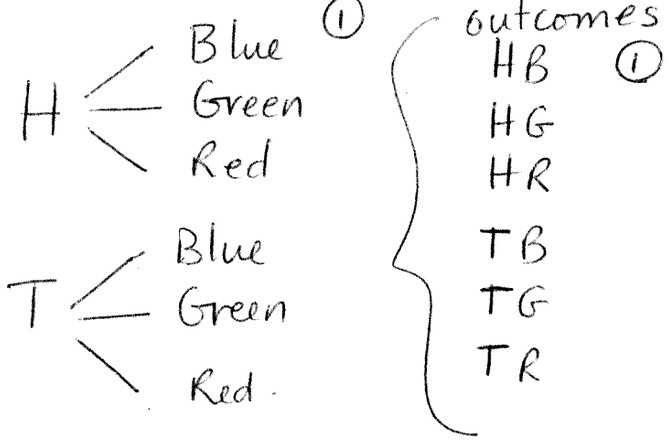
(1/2) $\frac{9}{20}$

(1/2) Then convert the fraction $\frac{9}{20}$ into a percent by writing an equivalent fraction out of 100: $\frac{9}{20} \xrightarrow{\times 5} \frac{45}{100} = 45\%$

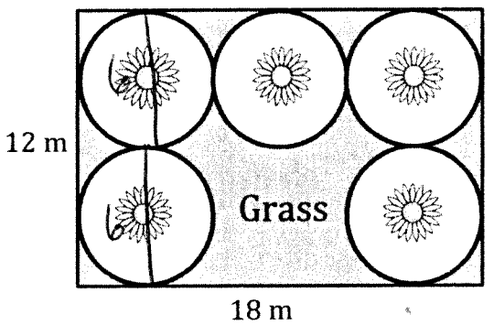
(1) Then multiply 45% by 360° to find the central angle: $45\% \times 360° = 162°$.

52. Nora flips a coin and spins a three-coloured spinner. Draw a tree diagram to show all possible outcomes. [2 points]





53. A 12 *m* by 18 *m* park has five identical circular flower beds. [4 points]



a) What is the area of each flower bed?

(½) $r = 3$

(1) $A = \pi r^2 = 3.14 \times 3^2 = 28.26\ m^2$

b) How many square metres of **grass** are required to cover the **shaded area**?

(½) Rectangle Area $= b \times h = 18 \times 12 = 216\ m^2$

(1) 5 Circles $= 5(28.26) = 141.3\ m^2$

(1) Grass Area $= 216 - 141.3 = 74.7\ m^2$

54. During one week in August, the highest temperature was recorded each day: [2 points]

16°C , 23°C , 26°C , 28°C , 23°C , 27°C , 25°C

Calculate the **mean, median,** and **mode.**

mean : $(16 + 23 + 26 + 28 + 23 + 27 + 25) \div 7$

$= 168 \div 7 = 24$

median : 16, 23, 23, 25, 26, 27, 28

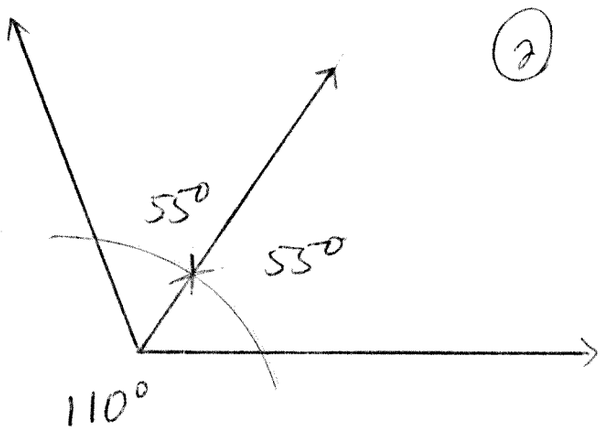
mode : 23

Mean 24°C (1)

Median 25°C (½)

Mode 23°C (½)

55. Draw $\angle ABC$ to measure 110°. Bisect the angle. [2 points]



(2)

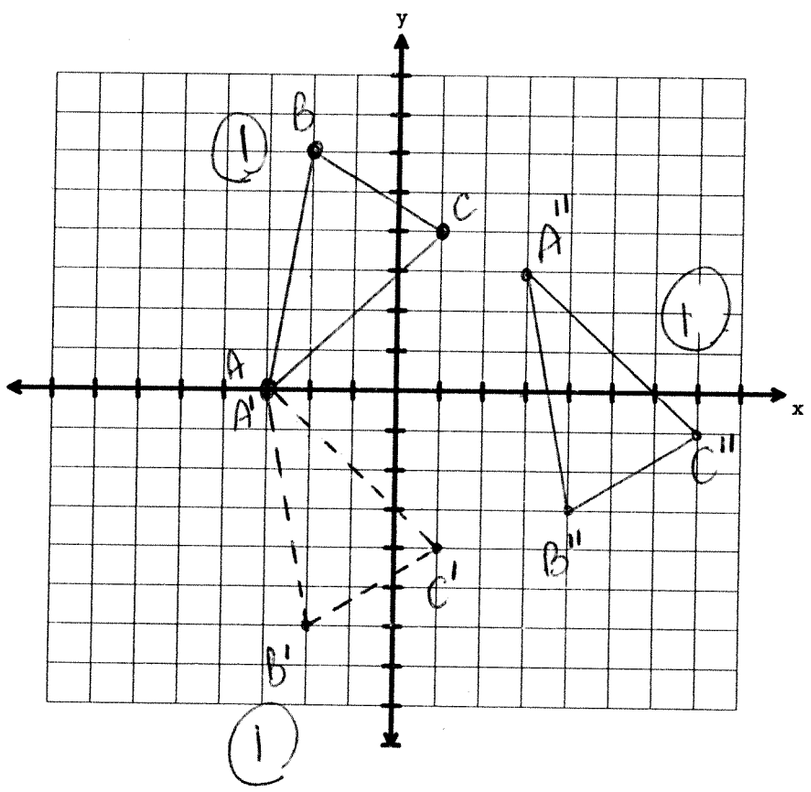
Compass or mira or paper folding or measure

56. a) Plot and label points A, B, and C to form a triangle. [3 points]

$A(-3,0)$ $B(-2,6)$ $C(1,4)$

b) Reflect ΔABC in the x-axis. Label the image.

c) Translate $\Delta A'B'C'$ 6 units right and 3 units up. Label the final image.



(1) (1) (1)

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End of Grade 7 Common Mathematics Assessment.
Have a safe and happy summer!

Grade 7 Common Mathematics Assessment
Answer Sheet

Name: _____
Mathematics Teacher: _____
Homeroom: _____

Section A
No Calculator Permitted

1.	(A)	B	C	D
2.	A	B	(C)	D
3.	A	B	C	(D)
4.	A	(B)	C	D
5.	A	B	C	(D)
6.	A	(B)	C	D
7.	A	B	C	(D)
8.	A	B	(C)	D
9.	(A)	B	C	D
10.	A	B	C	(D)
11.	A	(B)	C	D
12.	A	B	(C)	D
13.	A	B	C	(D)
14.	A	(B)	C	D
15.	A	B	C	(D)
16.	A	(B)	C	D

Section B
Calculator Permitted

24.	(A)	B	C	D
25.	A	(B)	C	D
26.	A	B	C	(D)
27.	A	B	C	(D)
28.	A	B	(C)	D
29.	A	B	C	(D)
30.	A	B	(C)	D
31.	A	(B)	C	D
32.	(A)	B	C	D
33.	A	(B)	C	D
34.	A	B	(C)	D
35.	A	(B)	C	D
36.	A	B	(C)	D
37.	(A)	B	C	D
38.	A	B	(C)	D
39.	(A)	B	C	D
40.	A	B	C	(D)
41.	A	B	C	(D)
42.	A	B	(C)	D
43.	(A)	B	C	D
44.	A	B	(C)	D
45.	A	B	(C)	D
46.	A	(B)	C	D
47.	A	B	C	(D)

Eastern School District
June 2013