2006-07 Idaho 6th Grade Direct Mathematics Assessment

Advanced Communication

6th GRADE MAIN RANGEFINDER 4

Effective Problem-Solving Strategies

It is important that you show or explain how you solved the problems on this assessment. If you use a calculator, show how you set up the math.

1. A 15-person soccer team wants to order new uniforms. They received the following price list for the four pieces that make up a complete uniform: (All prices are for one item, including sales tax.)

Advanced Understanding of Situation

Uniform Price List	
Shirt	$12.50
Shorts	$ 7.25
Warm-Up Jacket	$21.00
Warm-Up Pants	$15.00

a. What is the total cost of purchasing complete uniforms for the entire team? *Show or explain how you found your answer.*

$12.50 shirts × 15 people = 187.50
$7.25 shorts × 15 people = 108.15
$21.00 Jacket × 15 people = $315.00
$15.00 pants × 15 people = $225.00
$187.50 shirts + $108.75 shorts + $315.00 Jackets + $225.00 pants = $836.25

$836.25 total cost

b. A local construction company is sponsoring the team by giving them $500 to help purchase the uniforms. How much will each player need to pay to get a complete uniform? *Show or explain how you found your answer.*

$836.25 total − $500.00 = $336.25
$336.25 ÷ 15 players = $22.416

Each player will pay About $22.42.

c. One player can earn $5.40 an hour by helping a local farmer. How many full hours will he have to work to pay for his share of the cost of a complete uniform? *Show or explain how you found your answer.*

$2242.0 ÷ 540 = 4.15
540 × 2 = 1080
540 × 4 = 2160
540 × 5 = 2700
540 × 6 = 3240

He would have to work about 4 hours.

d. Last week $\frac{2}{3}$ of the uniforms were delivered. How many uniforms have not yet been delivered? *Show or explain how you found your answer.*

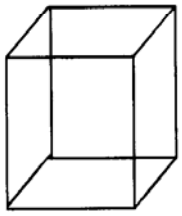
$\frac{2}{3} \cdot \frac{15}{1} = 10$ (15 players)
15 uniforms − 10 delivered = 5

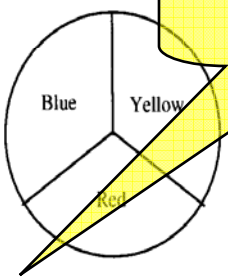
5 uniforms

Advanced Application of Basic Skills

Read problems 2, 3, 4, and 5 on this and the next two pages.
Select three problems to answer. Answer ALL of the parts of the three problems you select to answer.
Cross out the one problem that you do not choose to answer.

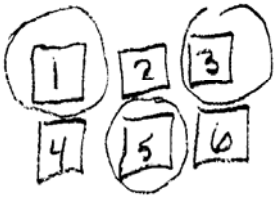
2. Teresa and Jack were playing a board game. In this game the players have to roll a six-sided number cube and then spin a 3-colored spinner.





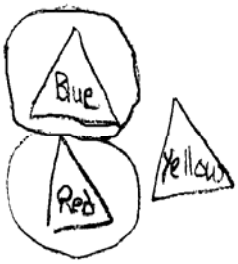
Well Defended Solutions

a. What is the probability that Teresa will roll an odd number on the number cube on her first roll? Write the probability as a fraction. *Show or explain how you found your answer.*



$\frac{3}{6} = \frac{1}{2}$ probibility

b. What is the probability that Jack will spin a blue or red on the spinner on his first spin? Write the probability as a fraction. *Show or explain how you found your answer.*



$\frac{2}{3}$ probibility

c. Make a list of all possible outcomes if Teresa rolls the number cube and spins the spinner. What is the total number of outcomes? *Show or explain how you found your answer.*

1	2	3	4	5	6
1+B	2+B	3+B	4+B	5+B	6+B
1+Y	2+Y	3+Y	4+Y	5+Y	6+Y
1+R	2+R	3+R	4+R	5+R	6+R

18 possible chances

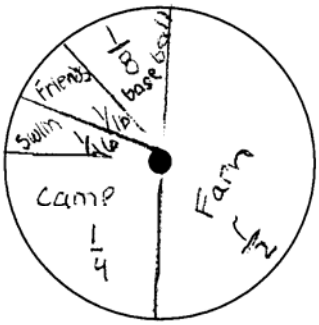
Appropriate Processes Accurately Completed

3. Daryl was excited for summer vacation. The circle below represents Daryl's summer vacation. Daryl spent $\frac{1}{2}$ of his summer on his uncle's farm. He spent $\frac{1}{4}$ of the summer at camp. He spent $\frac{1}{8}$ of the summer playing baseball. He swims $\frac{1}{16}$ of the summer. The rest of the summer is spent with his friends.

a. Using the information above, complete the circle graph below to show how Daryl spends his summer. Label each section of the graph. *Show or explain how you found your answer.*

DARYL'S SUMMER VACATION

Advanced Application of Basic Skills



I looked at the information it gave me.

b. What fraction of his summer is spent playing with friends? *Show or explain how you found your answer.*

$\frac{1}{16}$ of his summer

$\frac{1}{8} \div \frac{2}{1} = \frac{1}{16}$

c. What fraction of time is spent swimming and playing with his friends? *Show or explain how you found your answer.*

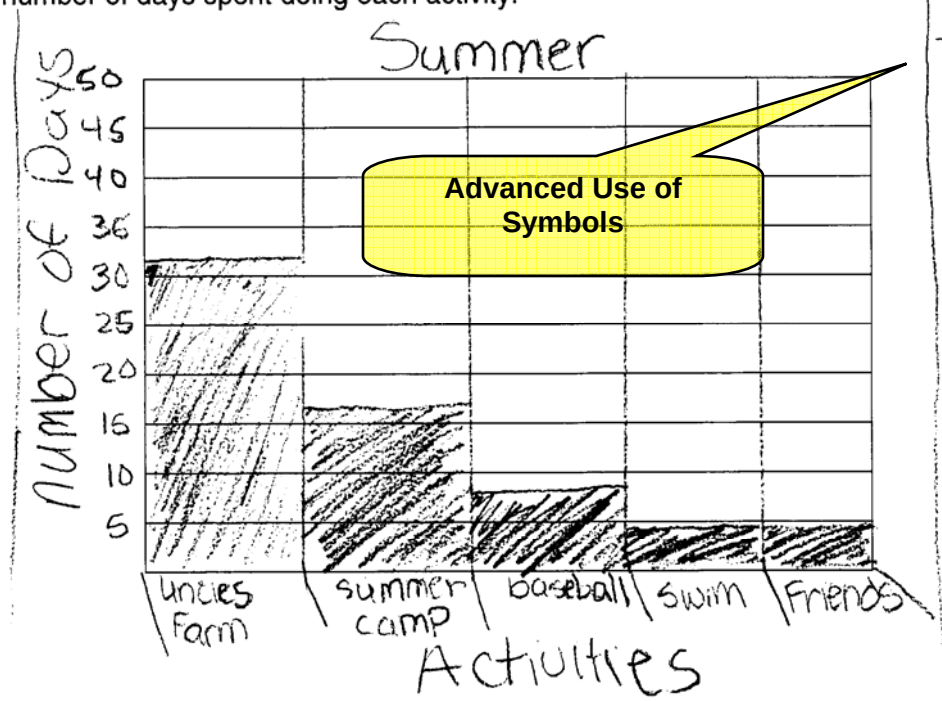
$\frac{1}{16} + \frac{1}{16} = \frac{2}{16} =$ $\frac{1}{8}$ playing with friends

d. Daryl's summer vacation is 64 days long. Draw and label a bar graph to represent the number of days spent doing each activity.

$10\overline{)64}$ = 6.4, 60, 40

$5\overline{)2}$ = .4

Advanced Use of Symbols



$\frac{1}{8} \cdot \frac{64}{1} = 8$

$\frac{1}{2} \cdot \frac{64}{1} = 32$

$\frac{1}{16} \cdot \frac{64}{1} = 4$

$\frac{1}{16} \cdot \frac{64}{1} = 4$

$\frac{1}{4} \cdot \frac{64}{1} = 16$

4. Joe is earning money to buy a bike. He saved $10.50 the first month, $21.00 more the second month, and $42.00 more the third month.

a. Complete the table below to find the amount he saved in the fourth month, if the pattern continues.

Month	Money Saved
1st	$10.50
2nd	$21.00
3rd	$42.00
4th	

b. What was the **total** amount of money Joe had saved by the end of the fourth month? *Show or explain how you found your answer.*

c. The bike costs $340.00. How many months will Joe have to save in order to have enough money to buy the bike? *Show or explain how you found your answer.*

Minimal Or (Non-existent) Error

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5. Freedom School has a track and field team. They hold the state record in many events.

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

a. Sandy won the hundred-yard dash in 2003. How many feet are in the hundred-yard dash? *Show or explain how you found your answer.*

100 yards × 3 feet = 300

300 feet

b. Carlos can run a mile in eight minutes. How many feet does he run each minute? *Show or explain how you found your answer.*

660
8 min. | 5280 feet
48
48
48
0

660 feet in one min.

c. Jamie held the record in cross-country running. He trained by running 9 miles a week. How many yards did he run each week? *Show or explain how you found your answer.*

5280 feet × 9 miles = 47,520

15740
3 | 47520
3
17
15
22
21
12

15,740 yards