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| **DAILY LESSON PLAN****MATHEMATICS FORM 5** |
| **CLASS** |  | **DAY** | Choose an item. |
| **WEEK** | Choose an item. | **TIME** |  |
| **DATE** | Click or tap to enter a date. | **DURATION (minutes)** |  |
| **LEARNING AREA** | Relationship and Algebra |
| **UNIT/TOPIC** | Variation |
| **CONTENT STANDARDS** | 1.1 Direct Variation | **LEARNING STANDARDS** | 1.1.1, 1.1.2 |
| **LEARNING OBJECTIVES** | **At the end of learning, students will be able to:*** Explain the meaning of direct variation.
* Determine the relation between two variables for a direct variation.
 |
| **ACTIVITY** | **Starter:**Teacher explains the concept of variation. Teacher explains the concept of direct variation and the graph of direct variation. Teacher relates the constant of a variation to the concept of proportion and gradients of straight lines.**Activity:**1. Students are divided into several groups.
2. Each group is given a situation related to direct variation. Example of situations:
3. The number of hours an employee works and the wage received
4. The speed of a car and the distance travelled when the time is fixed
5. The mass of a block suspended from the spring and the extension of the spring
6. In groups,
7. identify two variables in the situation;
8. explain the relationship between the two variables;
9. write the relationship between the two variables in variation form.
10. Write the results of the group discussion on a manila card and present it in front of the class.
11. Based on the given situation, teacher gives questions to ask students to write an equation or find the value of a variable when the other variable is known.

Example of question: Azmir earns RM96 after working for 8 hours. Write an equation that relates the wage and the number of hours worked. Find Azmir's wage if he works for 40 hours.1. Teacher chooses students to show the solution steps on the whiteboard.

**Closure:**Teacher gives exercises to the students. |
| **REFLECTION** | [ ]  Students were able to achieve the learning objectives successfully.[ ]  Students were able to achieve the learning objectives with guidance.[ ]  Students were not able to achieve the learning objectives. |

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| **DATE** | Click or tap to enter a date. | **DURATION (minutes)** |  |
| **LEARNING AREA** | Relationship and Algebra |
| **UNIT/TOPIC** | Variation |
| **CONTENT STANDARDS** | 1.1 Direct Variation | **LEARNING STANDARDS** | 1.1.3, 1.1.4 |
| **LEARNING OBJECTIVES** | **At the end of learning, students will be able to:*** Determine the relation between three or more variables for a given joint variation.
* Solve problems involving direct variation.
 |
| **ACTIVITY** | **Starter:**Teacher asks the students the concept of direct variation. Teacher explains the concept of joint variation.**Activity:**1. Students are given a situation related to the joint variation.

Example of situation: If the height of a cuboid is fixed, the volume of the cuboid varies jointly as the length and width.1. Students are asked to write the relationship between the variables in variation form.
2. Teacher chooses three students to present their answers.
3. Students are divided into several groups.
4. Each group is given a file containing questions of direct variation and joint variation.

*\*Refer to Appendix A for sample questions in the file*1. Students answer the questions in their respective groups.
2. Questions and answers are put back into the file and distributed to other groups.
3. After getting a new file from the other group, students discuss to check the answers from the other group and make corrections if any.
4. Each group should respond to two or three new files.

**Closure:**Teacher discusses all the answers. Teacher gives exercises to the students. |
| **REFLECTION** | [ ]  Students were able to achieve the learning objectives successfully.[ ]  Students were able to achieve the learning objectives with guidance.[ ]  Students were not able to achieve the learning objectives. |

**Appendix A**

**Questions in the file:**

File 1:

1. If *y* varies directly as *x* and *z*, and *y* = 15 when *x* = 5 and *z* = 3, express *y* in terms of *x* and *z*.
2. It is given that *p* varies directly as *q* and *r*, and *p* = 40 when *q* = 4 and *r* = 2. Find the value of *p* when *q* = 6 and *r* = 5.
3. The cost of notebooks varies directly as the number of notebooks. If the cost of 5 notebooks is RM10, how much will 8 notebooks cost?

File 2:

1. If *y* varies directly as *x* and *z*, and *y* = 16 when *x* = 1 and *z* = 2, express *y* in terms of *x* and *z*.
2. It is given that *p* varies directly as *q* and $\sqrt[3]{r}$, and *p* = 36 when *q* = 6 and *r* = 8. Find the value of *r* when *p* = 108 and *q* = 9.
3. The total cost of printing a certain number of leaflets varies directly as the number of leaflets printed where the cost per leaflet is the same. If the total cost is RM52 to print 500 leaflets, what is the total cost to print 800 leaflets?

File 3:

1. If *s* varies directly as *m* and *n*, and *s* = 180 when *m* = 5 and *n* = 6, express *s* in terms of *m* and *n*.
2. It is given that *a* varies directly as *b*2 and *c*, and *a* = 40 when *b* = −1 and *c* = 8. Find the value of *b* when *a* = 140 and *c* = 7.
3. The number of biscuit packets packed by a machine varies directly as the time. If the machine can pack 1 500 packets of biscuits in 30 minutes, how many packets of biscuits can it pack in 45 minutes?

File 4:

1. If *s* varies directly as *m* and *n*, and *s* = 84 when *m* = 3 and *n* = 4, express *s* in terms of *m* and *n*.
2. It is given that *a* varies directly as *b* and *c*, and *a* = 162 when *b* = 3 and *c* = 6. Find the value of *c* when *a* = –180 and *b* = 5.
3. The area of grass mown varies directly as the time of mowing. If the time taken to mow $\frac{1}{4}$ acre is
15 minutes, how long will it take to mow 1.2 acres?

**Answers (Questions in the file):**

File 1:

1. *y* = *xz*
2. *p* = 150
3. RM16

File 2:

1. *y* = 8*xz*
2. *r* = 64
3. RM83.20

File 3:

1. *s* = 6*mn*
2. *b* = 2 atau *b* = −2
3. 2 250 packets of biscuits

File 4:

1. *s* = 7*mn*
2. *c* = –4
3. 72 minutes

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| **LEARNING AREA** | Relationship and Algebra |
| **UNIT/TOPIC** | Variation |
| **CONTENT STANDARDS** | 1.2 Inverse Variation | **LEARNING STANDARDS** | 1.2.1 to 1.2.3 |
| **LEARNING OBJECTIVES** | **At the end of learning, students will be able to:*** Explain the meaning of inverse variation.
* Determine the relation between two variables for an inverse variation.
* Solve problems involving inverse variation.
 |
| **ACTIVITY** | **Starter:**Teacher explains the concept of inverse variation and the graph of inverse variation.**Activity:**1. Students are divided into several groups.
2. Each group is given a situation related to inverse variation. Example of situations:
3. The number of people who move the books to the ground floor and the time required to move all the books to the ground floor
4. The speed of a car and the travel time when the distance is fixed
5. The number of people in a car and the amount of money paid by each person for car petrol (each person shares the petrol payment equally)
6. In groups,
7. identify two variables in the situation;
8. explain the relationship between the two variables;
9. write the relationship between the two variables in variation form.
10. Write the results of the group discussion on a manila card and present it in front of the class.
11. Based on the given situation, teacher gives questions to ask students to write an equation or find the value of a variable when the other variable is known.

Example of question: 2 workers took 30 minutes to move all the books to the ground floor. Write an equation that relates the time and the number of workers. Find the time required if there are 3 workers.1. Teacher chooses students to show the solution steps on the whiteboard.

**Closure:**Teacher gives exercises to the students. |
| **REFLECTION** | [ ]  Students were able to achieve the learning objectives successfully.[ ]  Students were able to achieve the learning objectives with guidance.[ ]  Students were not able to achieve the learning objectives. |

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| **DATE** | Click or tap to enter a date. | **DURATION (minutes)** |  |
| **LEARNING AREA** | Relationship and Algebra |
| **UNIT/TOPIC** | Variation |
| **CONTENT STANDARDS** | 1.3 Combined Variation | **LEARNING STANDARDS** | 1.3.1, 1.3.2 |
| **LEARNING OBJECTIVES** | **At the end of learning, students will be able to:*** Determine the relation between three or more variables for a combined variation.
* Solve problems involving combined variation.
 |
| **ACTIVITY** | **Starter:**Teacher explains the concept of combined variation.**Activity:**1. Students are divided into several groups.
2. Each group member plays a role as follows.
3. Student 1: Hold the cards like a fan
4. Student 2: Choose a card and read the question to Student 3
5. Student 3: Answer the question
6. Student 4: Respond agree or disagree

*\*Refer to Appendix B for sample question cards*1. After completing one round, change the roles of the students.
2. Repeat this activity until all students have taken different roles.
3. For groups with more than four students, the extra student can play the role of Student 3 or Student 4.
4. If students cannot answer a question, they can say “pass!” and write down the question.

**Closure:**Teacher discusses all the answers. Teacher gives exercises to the students. |
| **REFLECTION** | [ ]  Students were able to achieve the learning objectives successfully.[ ]  Students were able to achieve the learning objectives with guidance.[ ]  Students were not able to achieve the learning objectives. |

**Appendix B**

**Question cards:**

Write the following in variation form.

*y* varies directly as *x* and inversely as the square root
of *z*.

Write the following in variation form.

*p* varies inversely as *q* and the cube of *r*.

Write the following in variation form.

*c* varies directly as the cube of *a* and inversely as *b*.

A

B

C

*y* varies directly as *x* and inversely as *z*. Express *y* in terms of *x* and *z* if *y* = 4 when
*x* = 6 and *z* = 3.

*p* varies directly as *q* and inversely as the square root of *r*. Express *p* in terms of *q* and *r* if *p* = 6 when *q* = 21 and *r* = 49.

*c* varies directly as the square root of *a* and inversely as *b*. Express *c* in terms of *a* and *b* if *c* = 1 when *a* = 16 and *b* = 2.

D

E

F

*y* varies directly as *x* and inversely as *z*, and *y* = 12 when *x* = 36 and *z* = 9. Find the value of *z* when *y* = 12 and *x* = 8.

G

*p* varies directly as *q* and inversely as the cube root of *r*, and *p* = 27 when *q* = 9 and
*r* = 8. Find the value of *q* when *p* = 10 and *r* = 27.

H

The electric force, *F*, between two charges varies directly as the product of the magnitudes of the two charges, *q*1 and *q*2, and inversely as the square of the distance between the charges, *r*. If the force between two charges is 36 N when the magnitudes of the two charges are 4 C and 2 C, and the distance between them is 3 m, find the constant, *k*.

I

**Answers (Question cards):**

$$y∝\frac{x}{\sqrt{z}}$$

$$p∝\frac{1}{qr^{3}}$$

$$c∝\frac{a^{3}}{b}$$

A

B

C

$$y=\frac{2x}{z}$$

$$p=\frac{2q}{\sqrt{r}}$$

$$c=\frac{\sqrt{a}}{2b}$$

D

E

F

*z* = 2

G

*q* = 5

H

*k* = 40.5

I