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| **THINK ABOUT IT:** Determine the value of x if the area of the triangle below is 48 m2. |

**REARRANGING FORMULAS –** *Teacher directed*

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| A formula is a mathematical relationship between different quantities that is expressed with algebra. For example, one formula for **s**peed is **d**istance divided by **t**ime, which we express like:  In this case, we say *s* (speed) is the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ of the formula because *s* is isolated on one side of the \_\_\_\_\_\_\_\_\_\_ and does not appear at all on the other. We can **change** the \_\_\_\_\_\_\_\_\_\_\_\_\_\_ of the formula, for example by multiplying both sides by *t*. The equation becomes:  Now, d is isolated and becomes the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. This is called \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ formulas. |

1) Rearrange the following formulas to make b the subject:

|  |  |  |
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| **Teacher** | **Your Turn** | |
|  |  |  |

2) Rearrange the following formulas for the indicated variable:

|  |  |  |
| --- | --- | --- |
| **Teacher** | **Your Turn** | |
|  |  |  |

3) Isolate for the indicated variable:

|  |  |  |
| --- | --- | --- |
| **Teacher** | **Your Turn** | |
|  |  |  |

4) Rearrange the following formulas for the indicated variable:

|  |  |  |
| --- | --- | --- |
| **Teacher** | **Your Turn** | |
| solve for *b* | solve for *r* | solve for *r* |

5) Rearrange the following formulas for the indicated variable:

|  |  |  |
| --- | --- | --- |
| **Teacher** | **Your Turn** | |
| solve for *t* | solve for *Z* | solve for *r* |

6) is the formula used to calculate the volume of a cylinder.

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| Solve for *r* | Determine the radius when *V = 1000 cm3 and height is 5 cm.* |

**PRACTICE**

1. Rearrange the following formulas for the indicated variable

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| --- | --- | --- |
| solve for *r* | solve for *m* | solve for *s* |
| solve for *t* | solve for *x* |  |

2. **Rearrange** the following formulas for the indicated variables, then **evaluate** for the given values for each variable.

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| solve for *r*  *Evaluate when I = $30, P=$1000, t=3 years* | solve for w  *Evaluate when P=100m, l=30m* |

**3. Rearrange then evaluate.**

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| a) It is not safe for an adult to surpass her or his maximum heart rate. This maximum heart rate, M, in beats per minute (bpm), is modeled by the equation M=230 – 1.2A, where A is the age of the adult in years. | |
| Rearrange to solve for A. | At what age should a person’s maximum exercising heart rate be 194 bpm? |
| b) The cost, C, in dollars, of producing a school yearbook is given by the formula C=S+4n, where S is the setup cost, and n is the number of yearbooks printed. | |
| Solve the formula for n. | If the set-up cost is $925, how many yearbooks can be printed? If S=$1500? |
|  | |
| c) The area, A, of a circle with radius r is given by A = πr2. | |
| Solve the formula for r. | Determine the radius of a circular oil spill that covers an area of 5.0 km2 |

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| d) You can convert Fahrenheit to Celsius using the following formula | |
| Solve the formula for F. | What is 35°*C* converted to °*F* ? |