Are you ready for Beast Academy 5B?

Before beginning Beast Academy 5B, a student should be able to order fractions, compute with negative integers, find prime factorizations, and write and solve basic equations using variables.

A student ready for Beast Academy 5B should be able to answer at least 12 of the 16 problems below correctly.

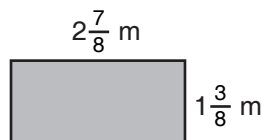**Step 1.** The student should try to answer every question without a calculator and without help.

Step 2. Check the student's answers using the solutions at the end of this document.

Step 3. The student should be given a second chance on problems that he or she answered incorrectly.

1. Order the fractions below from least to greatest.

1. _____

$$\frac{1}{5} \quad \frac{2}{11} \quad \frac{4}{3} \quad \frac{1}{4} \quad \frac{4}{7} \quad \frac{7}{6}$$

2. Compute the perimeter in meters of the rectangle below.

2. _____

$2\frac{7}{8}$ m

$1\frac{3}{8}$ m

3. List all of the factors of 42 that are also multiples of 3.

3. _____

4. What is the largest two-digit integer whose prime factorization includes exactly three 3's?

4. _____

Evaluate each expression below.

5. $7+3(-6) =$ _____

6. $\dfrac{8-2}{-4+1} =$ _____

7. $-5+\dfrac{(-1)^{15} \cdot 3+15}{-2(-3)} =$ _____

8. Circle the expressions below that are equal to -25.

$$-5^2 \qquad (-5)^2 \qquad -(5^2) \qquad -(-5)^2 \qquad (-5^2) \qquad -(-5^2)$$

9. Evaluate $\dfrac{3ab-4}{-c}$ when $a = -4$, $b = 5$, and $c = -16$.

9. _____

Find the value of the variable in each equation below.
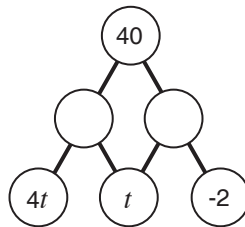
10. $\dfrac{3+n}{4} = 9$

11. $47 + 36k = 32k + 95$

10. $n =$ _____

11. $k =$ _____

12. In the Circle Sum puzzle below, the number in each circle is the sum of the numbers in the connected circles below it. What is t?

12. $t =$ _____

13. The combined cost of a mop and a jumpsuit is 39 dollars. If the jumpsuit costs 3 dollars more than 5 times the cost of the mop, then how much does the jumpsuit cost?
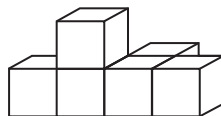
13. _____

14. A pyramid has exactly 12 edges. What is the shape of its base?

14. _____

15. The solid below was created by attaching 6 unit cubes. What is the surface area of the solid?

15. _____

16. A triangular prism is attached to the top face of a cube as shown. What is the volume in cubic inches of the new solid?

16. _____

3 in, 4 in, 5 in