

- List all factors of 42.
- Which of the following is a prime number?

91, 49, 101, 143, 2013

- List the first ten prime numbers.
- Compute the greatest common factor of 36 and 270.
 - Compute the least common multiple of 36 and 270.
- Compute 48% of 5000.
 - 8 is what percent of 400?
 - 60% of a number is 72. Find this number.
- The price of a TV set was increased from \$400 to \$480. What percent of an increase is this?
- In 2012, the town's discretionary budget was \$200 000. By 2016, this budget was reduced to \$130 000. What percent of a decrease is this?
- Maryam started to work at the office in 2012. At first, she was making \$2000 a month.
 - In 2014, she received a 10% raise. How much was she making after this raise?
 - In 2015, she received an additional 5% raise. How much was she making after this raise?
 - Express the two increase as a single increase. What percent of a change is this? (Hint: not 15!)
- Label each of the following statements as true or false.
 - $\sqrt{2}$ is an irrational number.
 - If a number is divisible by 10 and 12, then it is also divisible by 120.
 - If a number is divisible by 6 and by 8, then it is also divisible by 24.
 - If the product xy is divisible by 15, then x is divisible by 15 or y is divisible by 15.
 - If the product xy is divisible by 17, then x is divisible by 17 or y is divisible by 17.
 - -2 is an integer.
 - $-2 < -2$
 - $8 \geq 8$
 - Every square is a rectangle.
 - Every rational number has a reciprocal.
 - Every integer has an opposite.

- Perform the following operations. Show all steps.

| | | |
|--|-------------------------|------------------------------------|
| a) $18 - 2(-5) - 2(11 - 2(-5))$ | d) $ -7 - 2 - 8 + 3 $ | h) $ -7 -2 - 8 + 3 $ |
| b) $\frac{-3^2 + (-1)^3}{7 - 3(-1)^3}$ | e) $ -7 - 2 - 8 + 3 $ | i) $\sqrt{3\sqrt{49} - \sqrt{25}}$ |
| c) $-2^2(24 - 2(-3) - 5(-2)^2) - 12$ | f) $ -7 - 2 -8 + 3 $ | |
| | g) $ -7 - 2 - 8 + 3 $ | |

- Perform the following operations. Show all steps.

| | | | |
|---|--|--|---|
| a) $\left(-\frac{1}{2}\right)^2 - \frac{3}{4} \div \left(-\frac{2}{5}\right)$ | b) $\frac{\frac{1}{2} - \frac{1}{3}}{\frac{1}{2} \cdot \frac{1}{3}}$ | c) $\frac{2 - \frac{3}{5}}{2 \cdot \frac{3}{5}}$ | d) $-\frac{2}{5} + \frac{1}{3} \left(5\frac{3}{10} - 4\frac{1}{6}\right)$ |
|---|--|--|---|

12. Evaluate $\frac{3xy + 2x^2 - 2y^2}{x + 2y}$ if

a) $x = 2$ and $y = -3$

c) $x = -6$ and $y = 3$

e) $x = \frac{1}{3}$ and $y = -\frac{3}{4}$

b) $x = -1$ and $y = -2$

d) $x = -\frac{1}{2}$ and $y = \frac{2}{3}$

13. Evaluate $-p^2 + |2pq + q - 3|$ if

a) $p = 2$ and $q = -5$

b) $p = -4$ and $q = 3$

14. Consider the equation $3x^3 - 7x + 18 = -x + 3(x^2 + 6)$.

a) Is the number 2 a solution of this equation?

c) Is the number 1 a solution of this equation?

b) Is the number -2 a solution of this equation?

d) Is the number -1 a solution of this equation?

15. Consider a rectangle with sides 5 m and 12 m long.

a) Compute the perimeter of the rectangle. Include units in your computation and answer.

b) Compute the area of the rectangle. Include units in your computation and answer.

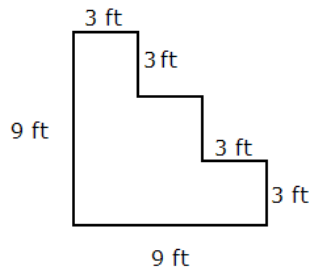
16. Consider a right triangle with sides 8 cm, 15 cm, and 17 cm long.

a) Compute the perimeter of the triangle. Include units in your computation and answer.

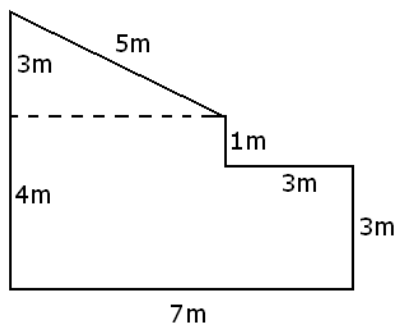
b) Compute the area of the triangle. Include units in your computation and answer.

17. In each case, compute the area of the object shown on the picture. Include units in your computation and answer.

a)



b)



18. Solve each of the following equations. Make sure to check your solutions.

a) $2x + 3 = 17$

e) $-2x + 5 = 17$

h) $\frac{1}{2}x - 3 = \frac{3}{4}$

b) $\frac{a-3}{2} = 5$

f) $\frac{x}{-7} + 1 = -2$

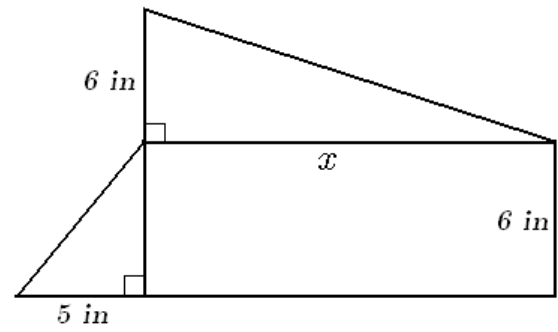
i) $\left(3\frac{2}{5}\right)x - \frac{1}{2} = 2\frac{1}{3}$

c) $\frac{a}{2} - 3 = 5$

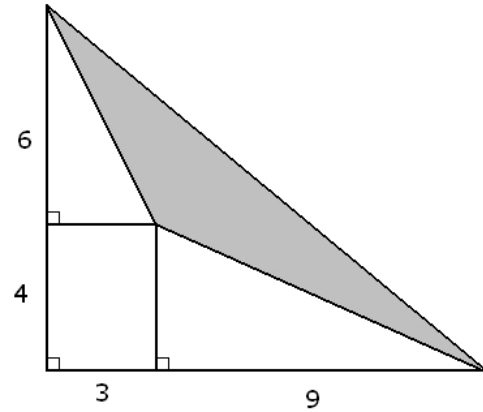
g) $\frac{2}{3}x - \frac{1}{6} = \frac{2}{5}$

d) $9z - 98 = 1$

19. Find the value of x if we know that the object shown on the picture has area 195 in^2 . (Hint: Set up and solve an equation expressing the area!)



20. Compute the shaded area shown on the picture. Units are in meters.



Answers

1. 1, 2, 3, 6, 7, 14, 21, 42
2. 101
3. 2, 3, 5, 7, 11, 13, 17, 19, 23, 29
4. a) 18 b) 540
5. a) 2400 b) 2% c) 120
6. 20% increase
7. 35% decrease
8. a) \$2200 b) \$2310 c) 15.5% increase
9. a) True b) False c) True d) False e) True f) True g) False h) True i) True
j) False k) True
10. a) -14 b) -1 c) -40 d) -2 e) 20 f) 17 g) 10 h) 49 i) 4
11. a) $\frac{17}{8}$ b) 1 c) $\frac{7}{6}$ d) $-\frac{1}{45}$
12. a) 7 b) 0 c) undefined d) $-\frac{5}{3}$ e) $\frac{17}{12}$
13. a) 24 b) 8
14. a) yes, since $28 = 28$ b) no, since $8 \neq 32$ c) no, since $14 \neq 20$ d) yes, since $22 = 22$
15. a) 34 m b) 60 m^2
16. a) 40 cm b) 60 cm^2
17. a) 54 ft^2 b) 31 m^2
18. a) 7 b) 13 c) 16 d) 11 e) -6 f) 21 g) $\frac{17}{20}$ h) $\frac{15}{2}$ i) $\frac{5}{6}$
19. $x = 20$
20. 21 m^2