

MATH E-3: Assignment 2

Total possible points = 33

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What set(s) of numbers do the following belong to (real, rational, irrational, integers, whole, natural).

Be sure to list ALL for full credit.

1) $-1/5$ Real, Rational

2 points

2) $\sqrt{3}$ Real, Irrational

3 points

3) π Real, Irrational

2 points

4) -17 Real, Rational, Integer

2 points

5) Is $-2/3$ a natural number? Why or why not?

2 points

- $2/3$ is not a natural number.

$$-2/3 \leq 1$$

6) Is $5/6$ a rational number? Why or why not?

2 points

Rational number, $5/6$ is the ratio of two integers and its decimal repeats $8.\bar{3}$

Simplify if possible. If not, tell why you cannot:

7) $\sqrt{36}$

1 point

$$36^{(1/2)} = 6$$

Answer: 6

8) $\sqrt[3]{-64}$

1 point

$$-64^{(1/3)} = -4$$

Answer: -4

9) $\sqrt{-25}$

1 point

$$\sqrt{-25} = \sqrt{(-1)(25)} = \sqrt{-1} \cdot \sqrt{25} = i \cdot 5 = 5i; \text{ where } \sqrt{-1} = i, i \text{ is an imaginary number}$$

Answer: 5i

10) $\sqrt[4]{625}$

1 point

$$625^{(1/4)} = 5$$

Answer: 5

Calculate the following:

11) $-17 - (-9)$

1 point

$$-17 + (9) = -8$$

Answer: -8

12) $-5 - 23$

1 point

$$-5 + -23 = -28$$

Answer: -28

13) $\frac{(-6)(-4)(3)}{-8+4}$

2 points

$$(-6)(-4)(3)$$

$$-8 + -4 = -12$$

$$24(3)$$

$$\underline{72}$$

$$\frac{72}{-12} = -6$$

Answer: -6

14) $6 - 2(5-3)^2 + 21 \div 7 \times 4$

2 points

$$\begin{aligned} & \downarrow 6 - 2(-2)^2 + \frac{21}{7} \times 4 \\ & 6 - 2(4) + \frac{21}{7} \times 4 \\ & 6 - 8 + 3 \times 4 \\ & 6 - 8 + 12 \\ & -2 + 12 = 10 \quad \text{Answer: } 10 \end{aligned}$$

15) $(2015)^0 = 1$

1 point

Answer: 1

16) $-48 + 63 = 15$ Answer: 15

1 point

17) $(-8) \times 4(-5) \times (-3)$

2 points

$$\begin{aligned} & \downarrow -32(-5) \times (-3) \\ & 160 \times (-3) \\ & -480 \quad \text{Answer: } -480 \end{aligned}$$

18) $\frac{(-4) \times (-5) \times 6}{(-12) \times 4 \div 8}$

2 points

$$\begin{aligned} & \downarrow (-4) \times (-5) \times 6 \\ & 20 \times 6 = 120 \end{aligned}$$

$$(-12) \times 4 \div 8$$

$$\left(\frac{-12}{1}\right) \times \frac{4}{8}$$

$$= \frac{48}{8} = -6$$

$$\frac{120}{-6} = -20 \quad \text{Answer: } -20$$

19) $(5 - 18) + 4(5 - 7)^2 + 24 \div 3 \times 2$

3 points

$-13 + 4(-2)^2 + \frac{24}{3} \times 2$

$-13 + 4(4) + \frac{24}{3} \times 2$

$-13 + 16 + 8 \times 2$

$-13 + 16 + 16$

$3 + 16 = 19$ Answer: 19

20) $|-25| = 25$ Answer: 25

1 point