This print-out should have 25 questions. Multiple-choice questions may continue on the next column or page – find all choices before answering.

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001   10.0 points

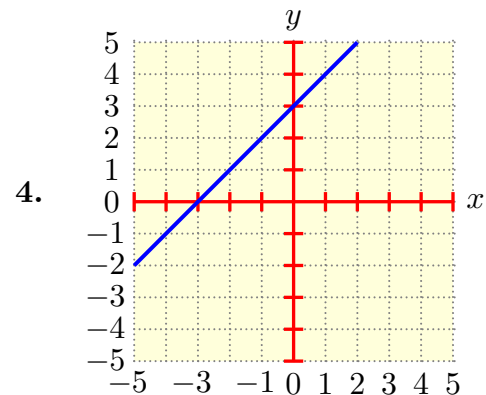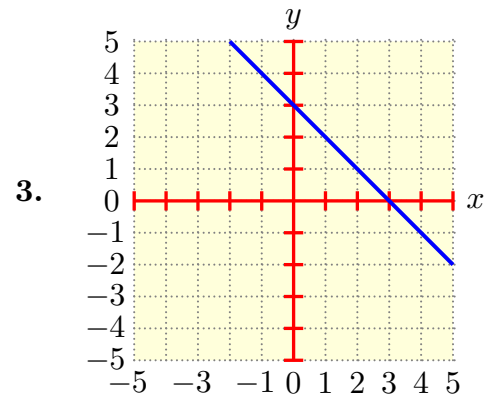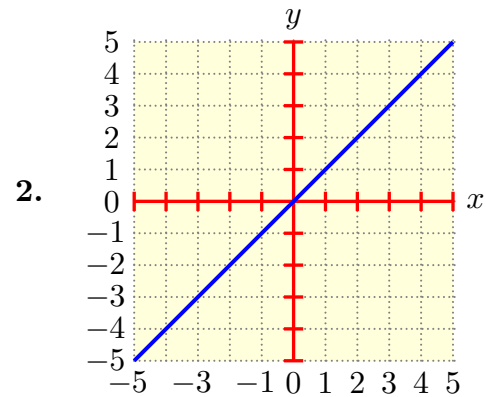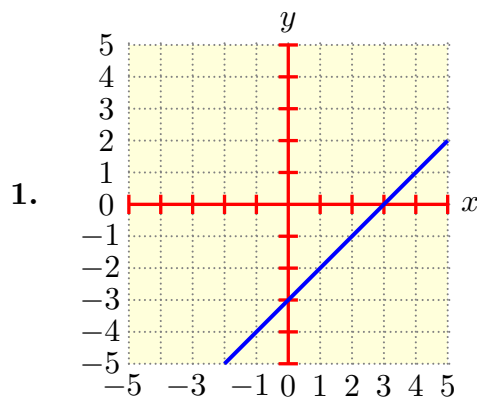The straight line ℓ is parallel to $y + 4x = 4$ and passes through the point $P(2, 5)$. Find its y-intercept.

1. y-intercept $= 15$

2. y-intercept $= -3$

3. y-intercept $= 13$

4. y-intercept $= -2$

5. y-intercept $= 14$

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002   10.0 points

Identify the graph of the function

$$f(x) = x - 3$$

1.

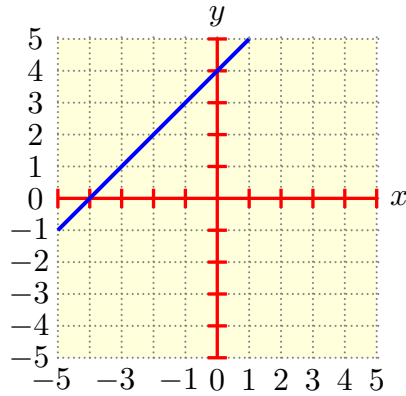**2.**

3.

4.

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003   10.0 points

Identify the graph of the function

$$f(x) = -1x + 4$$

1. None of These
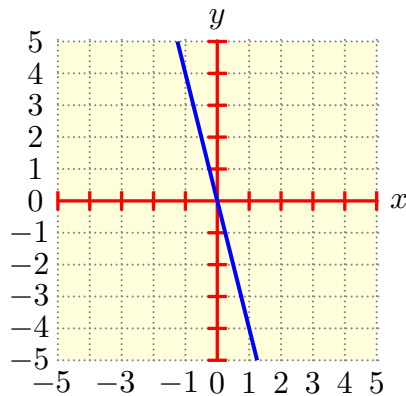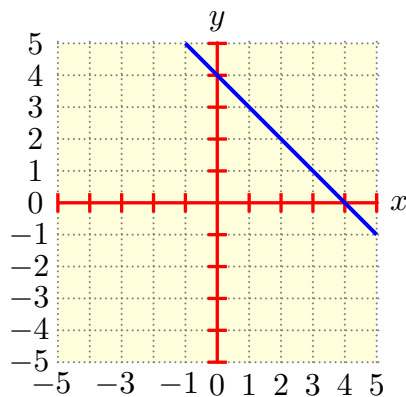
2.

3.
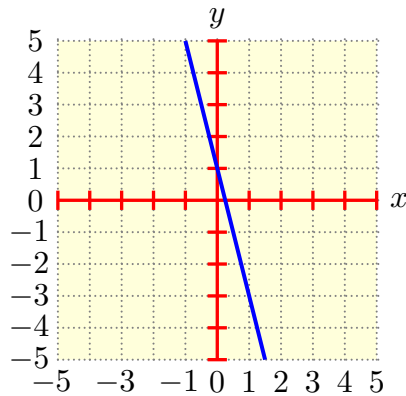
4.

5.

004　10.0 points

Solve
$$11x^2 + 33x = 0.$$

1. $x = \pm 3$

2. None of these

3. No solution

4. $x = 0, 3$

5. $x = 0, -3$

005　10.0 points

Solve
$$x^2 + 3x - \frac{3}{4} = 0.$$

1. $x = -\frac{3}{2} \pm \sqrt{3}$

2. $x = \pm \frac{3}{2} - \sqrt{3}$

3. $x = \pm \frac{3}{2} + \sqrt{3}$

4. $x = \frac{3}{2} \pm \sqrt{3}$

5. None of these

006　10.0 points

How many solutions does the equation
$$-3x^2 + 9x = 2$$
have?

007　10.0 points

How many real solutions does the equation
$$-x^2 + 9x - 2 = 0$$
have?

008　10.0 points

Explain how the graph of
$$g(x) = \sqrt[3]{x + 9} - 3$$
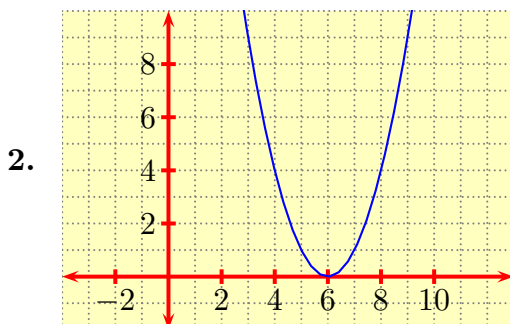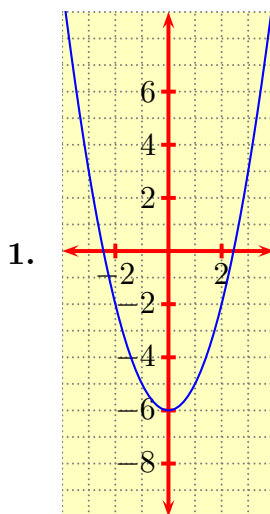can be obtained from the graph of $f(x) = \sqrt[3]{x}$.

1. A shift to the right by 9 and a shift up by 3.

2. A stretch by 9 and a shift up by 3.

3. A shift to the right by $\sqrt{9}$ and a shift up by 3.

4. None of these

5. A shift to the left by 9 and a shift down by 3.

6. A shift to the left by $\sqrt{9}$ and a shift down by 3.

7. A stretch by $\sqrt{9}$ and a shift down by 3.

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009   10.0 points

Sketch the graph of the function

$$f(x) = (x + 6)^2.$$

1.

2.

3.
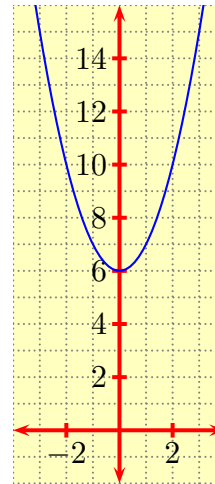
4.
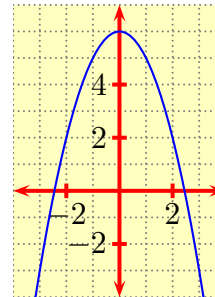
5. None of these

6.

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010 (part 1 of 2) 10.0 points

Write the polynomial

$$1 - 6x + 7x^3 - 2x^4$$

in standard form.

a) What is its degree?

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011 (part 2 of 2) 10.0 points

b) What is the leading coefficient?

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012   10.0 points

Determine which of the following functions (if any) are the same.

$$f(x) = 8^{-x} + 6$$
$$g(x) = 8^{6-x}$$
$$h(x) = -8^{x-6}$$

1. $f(x) = h(x)$ only

2. $g(x) = h(x)$ only

3. None of these

4. $g(x) = f(x)$ only

5. $f(x) = g(x) = h(x)$

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013 (part 1 of 3) 10.0 points

If $t = -\dfrac{\pi}{3}$, evaluate (if possible)
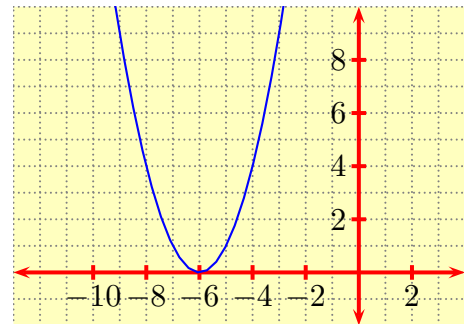
a) $\sin t$

1. $-\dfrac{1}{\sqrt{2}}$

2. $-\dfrac{\sqrt{3}}{2}$

3. None of these

4. -1

5. 0

6. $\dfrac{1}{2}$

7. $\dfrac{1}{\sqrt{2}}$

---

014 (part 2 of 3) 10.0 points

b) $\cos t$

1. 0

2. -1

3. $\dfrac{1}{2}$

4. $-\dfrac{1}{\sqrt{2}}$

5. None of these

6. 1

7. $\dfrac{1}{\sqrt{2}}$

---

015 (part 3 of 3) 10.0 points

c) $\tan t$

1. None of these

2. -1

3. $-\sqrt{3}$

4. 1

5. $\dfrac{1}{\sqrt{2}}$

6. $-\dfrac{1}{\sqrt{2}}$

7. 0

---

016 (part 1 of 3) 10.0 points

If $t = \dfrac{\pi}{4}$, evaluate (if possible)

a) $\sin t$

1. None of these

2. 1

3. 0

4. $\dfrac{1}{2}$

5. $\dfrac{\sqrt{3}}{2}$

6. $-\dfrac{\sqrt{3}}{2}$

7. $\dfrac{1}{\sqrt{2}}$

---

017 (part 2 of 3) 10.0 points

b) $\cos t$

1. $-\dfrac{\sqrt{3}}{2}$

2. $\dfrac{1}{2}$

3. 0

4. $\dfrac{\sqrt{3}}{2}$

5. None of these

6. $\dfrac{1}{\sqrt{2}}$

7. -1

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018 (part 3 of 3) 10.0 points

c) $\tan t$

1. 1

2. $-\dfrac{\sqrt{3}}{2}$

3. None of these

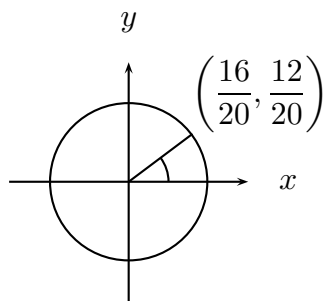**4.** $\dfrac{\sqrt{3}}{2}$

5. -1

6. 0

7. $\dfrac{1}{2}$

---

019 (part 1 of 6) 10.0 points

Consider the angle t defined by the point $\left(\dfrac{16}{20}, \dfrac{12}{20}\right)$

on the unit circle.

Find $\sin(t)$.

1. $\dfrac{12}{20}$

2. $\dfrac{16}{12}$

3. $\dfrac{20}{12}$

4. $\dfrac{12}{16}$

5. None of these

6. $\dfrac{16}{20}$

7. $\dfrac{20}{16}$

---

020 (part 2 of 6) 10.0 points

Find $\cos(t)$.

1. $\dfrac{20}{12}$

2. $\dfrac{12}{16}$

3. $\dfrac{12}{20}$

4. $\dfrac{16}{20}$

5. None of these

6. $\dfrac{16}{12}$

7. $\dfrac{20}{16}$

---

021 (part 3 of 6) 10.0 points

Find $\tan(t)$.

1. $\dfrac{12}{20}$

2. $\dfrac{20}{12}$

3. $\dfrac{16}{12}$

4. $\dfrac{20}{16}$

5. $\dfrac{16}{20}$

6. $\dfrac{12}{16}$

7. None of these

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022 (part 4 of 6) 10.0 points

Find $\csc(t)$.

1. $\dfrac{12}{20}$

2. $\dfrac{12}{16}$

3. $\dfrac{20}{12}$

4. $\dfrac{16}{12}$

5. $\dfrac{20}{16}$

6. None of these

7. $\dfrac{16}{20}$

023 (part 5 of 6) 10.0 points

Find $\sec(t)$.

1. $\dfrac{20}{12}$

2. None of these

3. $\dfrac{16}{12}$

4. $\dfrac{12}{16}$

5. $\dfrac{16}{20}$

6. $\dfrac{12}{20}$

7. $\dfrac{20}{16}$

024 (part 6 of 6) 10.0 points

Find $\cot(t)$.

1. $\dfrac{12}{16}$

2. $\dfrac{12}{20}$

3. None of these

4. $\dfrac{16}{20}$

5. $\dfrac{20}{16}$

6. $\dfrac{16}{12}$

7. $\dfrac{20}{12}$

025   10.0 points

Evaluate

$$f(x) \;=\; \sin x + 9\cos\frac{1}{2}x$$

at $x = \pi/3$.

1. $f(\pi/3) \;=\; 7\sqrt{3}$

2. $f(\pi/3) \;=\; 7$

3. $f(\pi/3) \;=\; 6$

4. $f(\pi/3) \;=\; 5$

5. $f(\pi/3) \;=\; 6\sqrt{3}$

6. $f(\pi/3) \;=\; 5\sqrt{3}$